THE PAPER INDUSTRY and PAPER WORLD

MARCH, 1941 — VOLUME 22 — NUMBER 12

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is manufactured out of

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BAKER TRUCKS *are saving Time and Space (and Money) for* CHAMPION PAPER MILLS

Baker Hy-Lift Trucks loading skids of paper into box car at Champion's Hamilton Mill.

Baker Trucks make quick work of unloading a car of baled pulp for Champion Paper.

● A large fleet of Baker Trucks serves The Champion Paper and Fibre Company from the unloading of baled pulp to the delivery of the finished sheets and rolls to storage or shipment . . . Faster handling, greater maneuverability and heavier loads cut time and overhead. Tiering saves storage space . . . Like many other companies, Champion meets the demand for increased production without expansion with Baker Trucks. If this is *your* problem, Baker can help you, too.

Heavy rolls of Champion paper are carried quickly, easily and economically on Baker Platform Trucks.

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TO OPACIFY, whiten and brighten paper stocks and to improve printing quality are the specific services which TITANOX pigments are designed to perform. They give these services completely and consistently.

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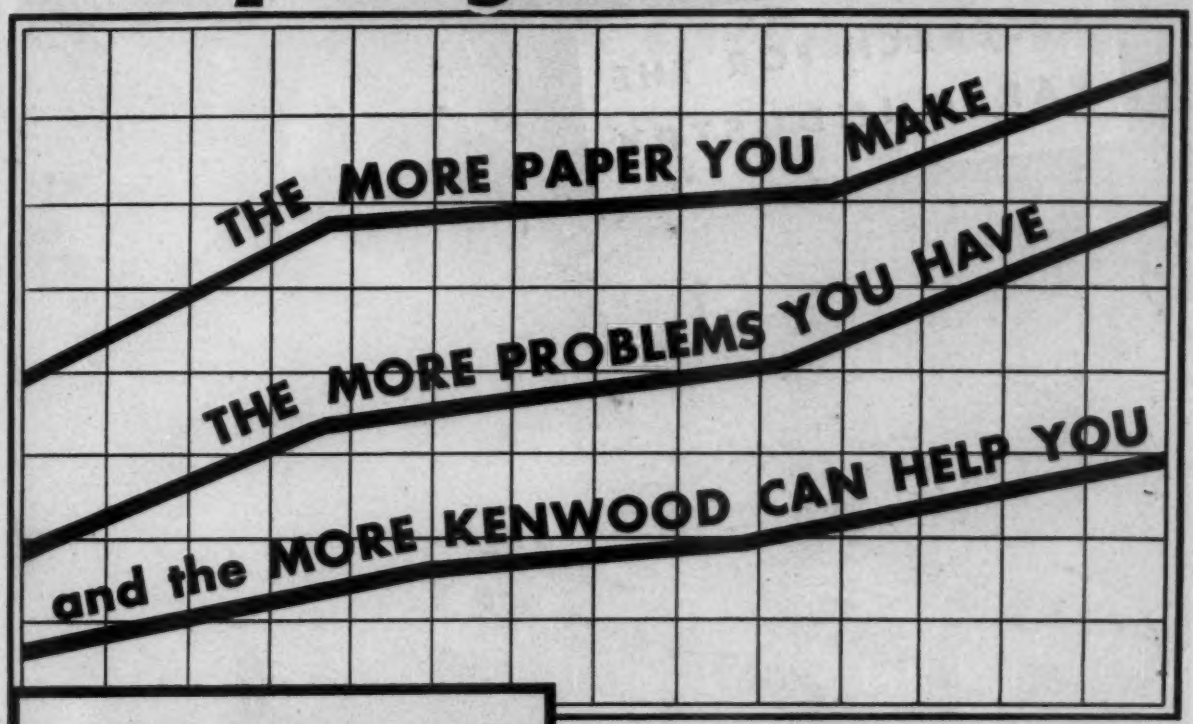
Everything is on the UP!



1940 PRODUCTION

Total Paper
14,372,000 tons . . UP 6%

Paperboard
6,550,000 tons . . UP 7%

Newsprint
1,030,000 tons . . . UP 8%

Tissue Paper
720,000 tons . . . UP 8%

Book Paper
1,624,000 tons . . . UP 6%

Wrapping Paper
2,350,000 tons . . UP 5%

PAPER PRODUCTION hit another new high in 1940, and there is every indication that even greater advances will be made in 1941. During such times of rapid expansion frequent changes may be made in your grade of paper, the mechanical hook-up of your machines, or the speed of operation. Every such change brings new paper problems involving felts—problems which F. C. Huyck & Sons, makers of Kenwood Felts, can help you solve. For every Kenwood Felt is backed by 71 years of experience, by Huyck research, and by field engineers who study your problems. There is a representative in your territory who will be glad to bring the benefits of Huyck service to you.

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$5,223.24 to Draw a Picture of Color

THE intricate mechanism shown here—a spectrophotometer—automatically draws a picture of the exact color of any paper sample or paper-making material.

This is just one example of the complex instruments and special equipment Hercules employs to maintain uniform high-quality in the chemicals produced for paper makers. Hercules' facilities of this kind are far more extensive than an individual paper maker would be justified in acquiring, but these facilities, as well as the high quality products they make possible, are available to users of Hercules paper-making chemicals.

PAPER MAKERS CHEMICAL DEPARTMENT

HERCULES POWDER COMPANY

INCORPORATED

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SUPERIOR PMC CHEMICALS

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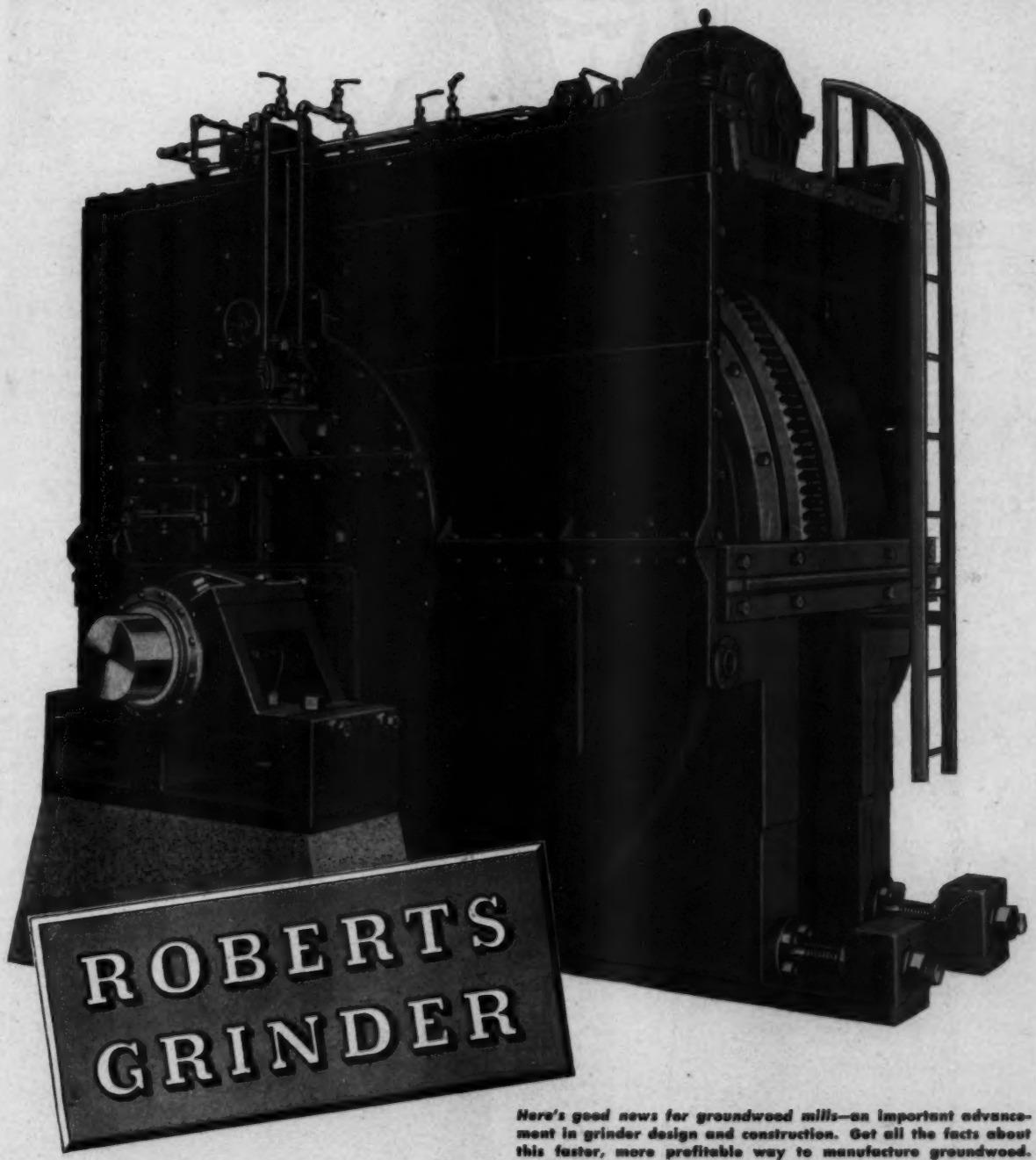
PORTLAND, ORE.
SAN FRANCISCO, CALIF.
SAVANNAH, GA.
STONEHAM, MASS.
FREEMAN, ONT., CANADA
ERITH, ENGLAND

PM-76

A Faster-More Profitable Way to Manufacture Groundwood



Here's good news for groundwood mills—an important advancement in grinder design and construction. Get all the facts about this faster, more profitable way to manufacture groundwood. Write for complete information on the many special features and production and operating advantages of the ROBERTS GRINDER.

THE APPLETON MACHINE COMPANY

APPLETON, WISCONSIN

In Canada, F. W. ROBERTS MANUFACTURING CO. of CANADA, Limited, *at Niagara Falls, Ont.*

Paper Parade

RIGHT SHOULDER ARMS!
The Paper Regiment Answers the country's Call to Arms, And marches in defense of the principles Of our Nation.
"We arm for peace— Not for war."
"PAPER"
Adopted by T'sai Lun, 105 A.D.
Became a citizen of the U.S. in 1690.
Installed the first U.S. Fourdrinier machine in 1827.
Established the first U.S.
—Soda pulp mill in 1855;
—Groundwood mill in 1867;
—Sulphite mill in 1882;
—Sulphate mill in 1909.
Enlisted for 1941 are:
731 Paper mills
97 Groundwood mills
75 Sulphite pulp mills
32 Soda pulp mills
39 Sulphate pulp mills
11 Misc. pulp mills
PAPER on the march

New Mill in *Brazil* Will Use *Parana Pine*

▸▸▸ ONE OF THE MOST outstanding developments in the industry of the Western Hemisphere is a new plant to be built in Brazil. Although it was announced some time ago that a mill would be built, the full details only recently have been given out. President Vargas, of Brazil, has signed a decree opening a $3,000,000 account for this new plant. The total estimated cost of the plant is $4,500,000.

The Industries Klabin do Parana is the Brazil company which is promoting the building of this plant in Parana, southwest of Rio De Janeiro. The Klabin Industries already operate two mills. Their mill at Sao Paula manufactures kraft, board, and printing papers. At this plant there is also a groundwood mill manufacturing pulp from Parana pine. The second mill at Rio De Janeiro is a paper mill.

Samuel Klabin has established an office in New York City and has had representatives of his company studying paper-mill methods used in the States. Associated with him at New York are W. Brubacher, formerly with Kimberly-Clark Corporation, also Dr. Ernest Froelich.

Contracts already placed for machinery

The Klabin interests have just announced that contracts already have been placed for some of the equipment for this new mill which will manufacture bleached and unbleached sulphite pulp, newsprint, and tissues.

The machinery ordered includes:

Bagley & Sewall Company

One 192-in. fourdrinier paper machine (new), capacity approx. 150 tons daily.

One 120-in. six-cylinder board machine (reconditioned), capacity 50-75 tons per day.

One cylinder machine (rebuilt) for production of various grades of tissues.

The new 192-in. newsprint machine will be made according to the specifications which call for the very latest in design and construction. Bagley & Sewall also will supply a considerable amount of auxiliary equipment.

This business will keep the Bagley & Sewall shops quite busy. However, the company states that domestic business will be taken care of as usual because of the fact that shipment of the

Forest of Parana pine growth as seen from the Sao Paulo & Rio Grande Railway, the north and south road which connects Sao Paulo with Uruguay. This is young growth on burned over land.

Parana Pine

(Araucaria Brasiliana)

This species is the only tree in Brazil which grows in pure stands. It is the great Parana Pine forest which offers the most interesting proposition at the present time. This vast forest is about one thousand miles long and fifty to two hundred miles wide. Skilled American timber cruisers have estimated that there must be upwards of 350,000,000,000 board feet of this pine, more than all of the other commercial timber in Brazil. The virgin forest will average 7,000 to 10,000 board feet to the acre. The mature trees are 25 to 65 inches in diameter and from 60 to 120 feet in height. The sapwood is pale yellow and submits readily to bleaching. The green logs have a specific gravity of about 1.420 and those of seasoned timber .550. The wood contains no rosin, it being all in the bark which is readily removed. The remarkable length of the fiber (4.50 millimeters) classifies it as among the longest cellulose fibers known. (From "The Brazilian Paper Industry," by Reo Bennett [deceased], *The Paper Industry*, Jan. 1938. Illustrations on this and preceding page were used with the original article.)

equipment to Brazil will be made over a period of the next eight months. The shops at Watertown are working at capacity with a force of 400 men full time.

Sandy Hill Iron & Brass Works

Four grinders and a complete bleaching plant have been ordered from Sandy Hill, Hudson Falls, New York.

Dominion Bridge Company

From this company at Montreal, Canada, the Klabin interests have stated they will order three digesters for the sulphite pulp mill.

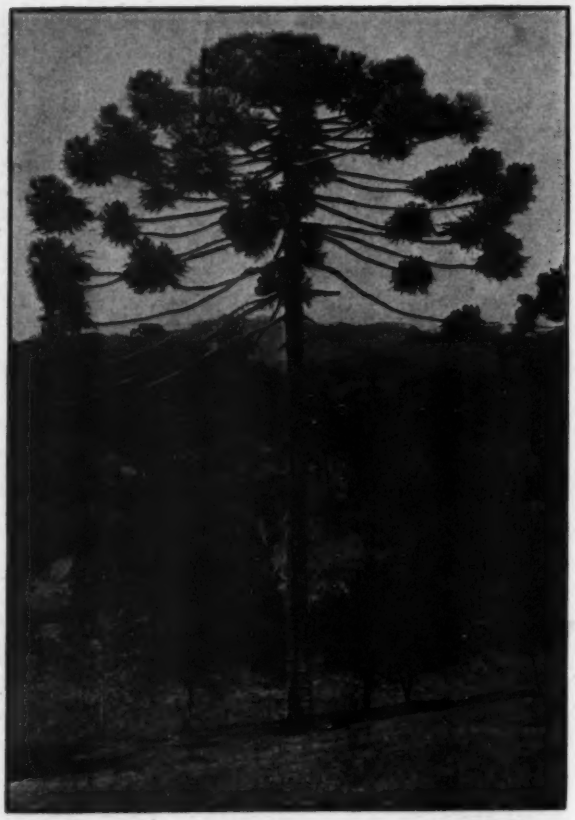
OTHER EQUIPMENT including a pulp drying machine will be contracted for, and, according to the New York office of the Klabin interests, a hydroelectric plant will be built near the new mill to develop 18,000 horsepower.

◆

HAMPSHIRE PAPER COMPANY MOVES TO HOLYOKE

The Hampshire Paper Company, one of the oldest paper concerns in Western Massachusetts, will move May 1 from South Hadley Falls to Holyoke where 17,000 square feet of floor space has been rented in a mill formerly occupied by a thread company. May 1 is the date set for the moving.

The primary purpose for the change is the need for more space by the Stevens Paper Mills, Inc., owners of the former Hampshire property in South Hadley Falls. The change brings to Holyoke one of the old companies in the fine paper field. The Hampshire Company is 75 years old and has been in the Southworth family for three generations.



A Parana pine 20 years old. This tree is 60 feet high, six feet in circumference and the branches are 45 feet across.

7,000 MEN WORK FOR NEWSPRINT INDUSTRY IN P. Q.

A recent survey shows that the newsprint industry in the province of Quebec provides a source of work for approximately 7,000 men. An analysis of these figures presents some interesting facts.

A 250-ton mill requires 100,000 cords of wood a year in order to run to capacity. It also takes a crew of seven men under a trained forester approximately two months to locate the wood, map and cruise the country, and prepare reports for the beginning of operations.

It takes 650 men in the neighborhood of five months to cut and skid 100,000 cords of wood, and about 300 men six months to haul, drive, and deliver the wood to the mill. Teamsters are required to handle teams of horses during the hauling season.

It is estimated that the delivery of 100,000 cords of wood to the mill requires an expenditure of $1,000,000, not including the capital invested in mills, where on the average 250 men are employed. The aggregate then is 450 per 250-ton mill. Quebec has 25 times 250 tons, or 6,250 tons, daily when all its mills are at capacity.

SPECIAL CARS FOR SHIPPING OF WET SULPHITE PULP

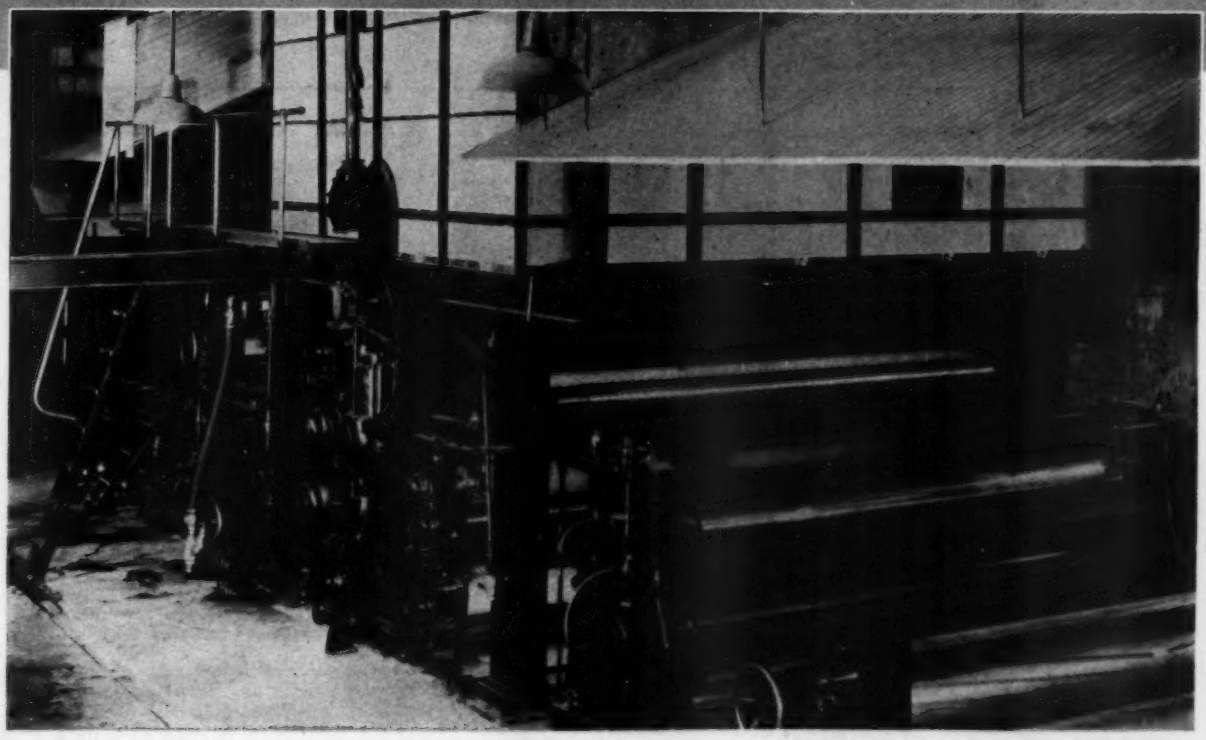
The problem of transporting wet pulp, which comes from the machines steaming hot and reeking of sulphite fumes, has been solved by the officials of the North Western Road at the Green Bay Shops. They rebuilt an old refrigerator car, fitting it with panels of plywood, coated with three layers of varnish, and put it out under actual working conditions. The experiment proved successful, and now 55 old cars are being rebuilt at the Shops for use by Fox River Valley mills.

◆

BADGER HAS NEW CONVERTING PLANT

A new converting building costing $75,000 is scheduled to be opened by the Badger Tissue Mills, Incorporated, Peshtigo, Wisconsin, this month. The building is a two-story brick and concrete unit of fireproof construction. The second floor will be used as the converting division and the first floor will be for storage and shipping. Special air conditioning and humidifying equipment is featured. The new unit will replace a frame building which will be converted into a warehouse.

Latest improvements on new machine for making facial tissue



This new 138" Puseyjones Fourdrinier for the making of facial tissue, reflects the experience of nearly 75 years in producing paper-making machinery. It is equipped with these outstanding Puseyjones features:

(1) Copper-lined Head Box with flow distributor;
(2) High-speed Slice insuring proper formation;
(3) Compact press and dryer arrangement;
(4) Pneumatic control on pressure roll nip;
(5) Creping dryer, special material and construction;
(6) Doctor of special design for dry creping.

The performance of this new 138" Fourdrinier in the mill of a leading maker of toilet and facial tissue—fine quality tissue at top running speeds—is typical of the results being achieved with high-speed Puseyjones machines in manufacturing papers of almost every type. Write for further facts.

THE PUSEY AND JONES CORPORATION

Established 1848. Builders of Paper-making Machinery. Wilmington, Del.

THE SIGN OF TRADE MARK SUPERIOR QUALITY

M. & O. REORGANIZATION CONSUMMATED

▶▶▶ EXACTLY TEN YEARS to the day after receivers in equity were appointed for the Minnesota and Ontario Paper Company, International Falls, Minnesota, a complete reorganization became effective and new officers were elected.

The election of officers and subsequent announcement of the appointment of men to key positions in the new company followed consummation on February 28 of the trustees' amended plan of reorganization confirmed by Judge Nordbye on January 10, last. The court, on January 10, also appointed a board of nine directors. The members of this board, in accordance with the amended plan of reorganization just consummated, will remain in office for two years.

At the initial meeting of the board of directors of the reorganized company, R. H. M. Robinson, of Minneapolis, was elected president of the M. & O. Company. Mr. Robinson announced that there would be no change in policy in the operation of the new company, and that the following employees of the old company had been named to key positions in the new firm:

R. W. Andrews, executive vice president.

C. T. McMurray, vice president in charge of sales.

R. J. Henderson, vice president in charge of traffic.

R. D. Main, secretary treasurer.

Frank J. Hickling, comptroller.

J. H. Davidson, chief engineer and manager of mill operations.

J. B. Norman, purchasing agent.

L. A. Furlong, director of publishers' sales.

E. W. Morrill, sales manager, Insulite division.

Curtis H. Nance, manager foreign sales and operations, Insulite division.

G. F. McDonald, sales manager, International lumber division.

R. O. Warner, manager of merchant sales, paper division.

D. McLeod, vice president, Kenora.

Clarence Larson, resident manager, International Falls, Fort Frances Division.

R. Bateman, resident manager, Kenora Division.

The final order of the court vested the properties of the old company in the new company, and terminated a receivership which began ten years before to the day.

It was on February 28, 1931, that the court appointed receivers in equity of the old company upon bill of complaint of an unsecured creditor.

On March 13, 1934, the trustee for the first mortgage bonds of the debtor company filed an independent action to foreclose the mortgage.

Four months later, on July 11, the court, pursuant to the provisions of Section 77B of the Bankruptcy Act, as amended, appointed Mr. Robinson and C. T. Jaffray, of Minneapolis, as temporary trustees, upon receipt of a petition filed by the unsecured creditors.

On September 29, of the same year, appointment of Mr. Robinson and Mr. Jaffray, and of S. M. Archer, of St. Paul, as trustees, was made permanent by the court.

A little over a year later, on October 31, 1935, the court stayed foreclosure proceedings pending reorganization of the debtor company, and further court order.

On May 22, 1939, the court entered an order making certain sections of the Chandler Act applicable to the pending proceedings. This order directed the trustees to submit a statement of their investigation of the properties, liabilities and financial condition of the debtor to the creditors and stockholders, and of the desirability of its continuance, on or before July 1, 1939.

R. H. M. ROBINSON

President of New M. & O. Paper Co.

R. H. M. Robinson, president of the new Minnesota and Ontario Paper Company, is known nationally in the field of business, engineering and naval architecture.

His first connection with the company came in December, 1931, when he was appointed receiver, with C. T. Jaffray, of Minneapolis, and at the same time was designated as managing receiver.

Mr. Robinson was graduated with first honors from the U. S. Naval Academy in 1896. He later graduated in naval architecture and engineering from the University of Glasgow, Scotland, in 1898.

He was commissioned as officer in the construction corps of the U. S. Navy in 1899 and served as a commissioned officer of the Navy in the construction corps, through the ranks of junior lieutenant, lieutenant and lieutenant-commander.

He resigned from the service in 1913 to enter private business.

During his stay with the Navy, he served as assistant superintendent constructor and superintendent constructor for the U. S. Navy, at Cramp's Shipyard, Philadelphia; was in charge of construction of the battleship Connecticut, Navy Yard, New York, and was assistant to the chief constructor of the Navy, in charge of design and new construction.

He also served for a time on the staffs of Admiral Robley D. Evans, Admiral William H. Bronson, Admiral Charles J. Badger and Admiral William S. Cowles. During the World War, he was a reserve officer in the navy.

From 1913 to 1917, he was general manager, and subsequently managing director, of the Lake Torpedo Boat Company, at Bridgeport, Connecticut.

In 1917, he became president of the Merchant Shipbuilding Corporation, and the Chester Shipbuilding Corporation, Ltd., which were later merged. He remained as president of this company until it became an investment trust under the name of the Merchant-Sterling Corporation.

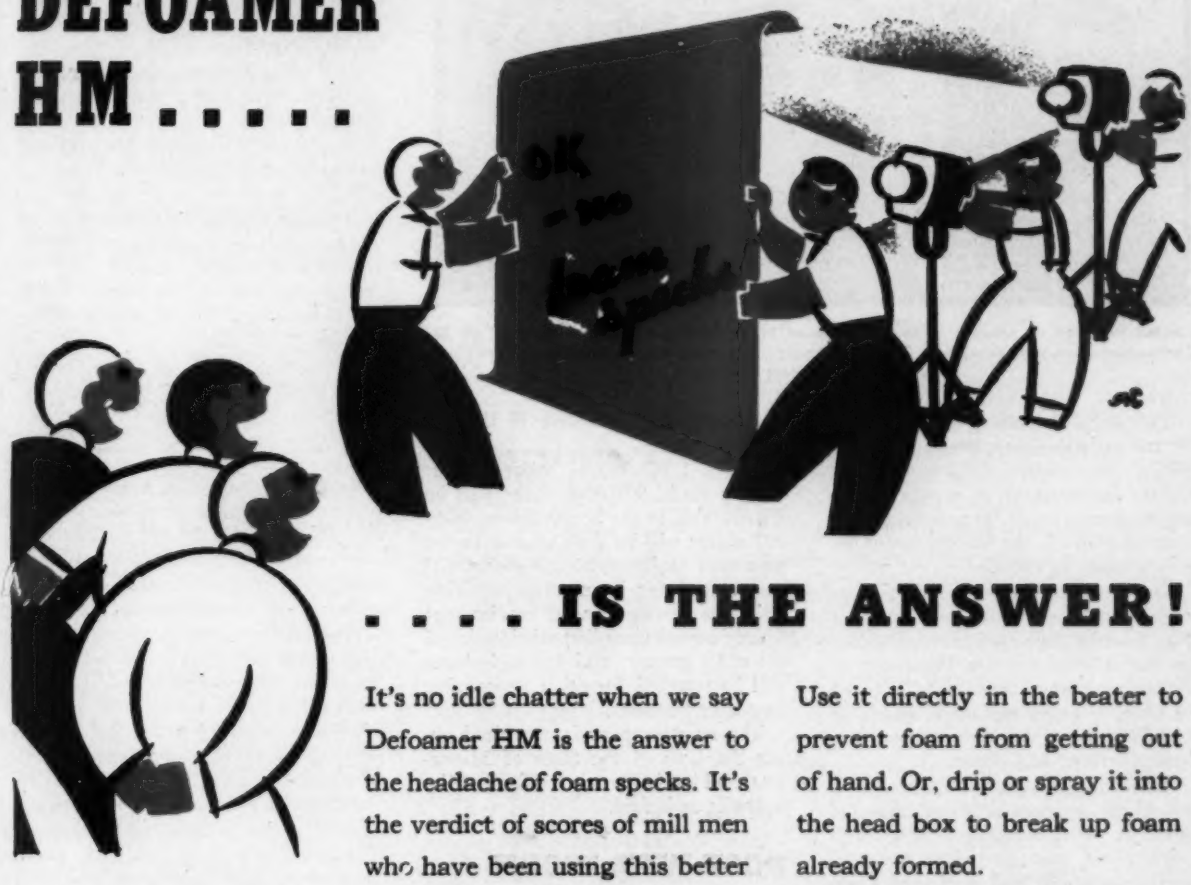
In 1919, he became a vice president of W. A. Harriman & Company, Inc., and later continued as a member of its executive committee until it was merged with Brown Bros., Harriman & Co., in 1930.

In 1920, he became vice president, and subsequently president, of the American Ship and Commerce Corporation, and the United American Lines, and continued as president of the latter until 1926, when it was sold to the Hamburg-American Line. He remained president of the American Ship and Commerce Corporation until 1931.

In 1926, he became chairman of the board of directors of the Russian Finance and Construction Corporation, and of the Georgian Manganese Company, Ltd., which operated a manganese concession in Russia. He later became president of the two companies and continued as such until 1931.

In December, 1931, he became managing receiver of the M. & O. and president of its subsidiary companies. In 1934, when the receivership was converted into a trusteeship, he became managing trustee of the M. & O., and continued as such until this year.

DEFOAMER HM . . . . .



. . . . IS THE ANSWER!

It's no idle chatter when we say Defoamer HM is the answer to the headache of foam specks. It's the verdict of scores of mill men who have been using this better defoamer for over two years.

Defoamer HM is economical—and delivers the goods in a way that brings in repeat orders consistently from satisfied users.

Use it directly in the beater to prevent foam from getting out of hand. Or, drip or spray it into the head box to break up foam already formed.

Give Defoamer HM a practical trial in your own plant and learn how effectively it checks foam-specks. Write today for a free working sample.

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CALCO CHEMICAL DIVISION
AMERICAN CYANAMID COMPANY

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Elected to serve as officers of the reorganized M. & O. Paper Co. are: (L to R) R. W. Andrews, senior vice president; C. T. McMurray, vice president in charge of sales; and Ralph Main, secretary-treasurer.

This order also set up a plan whereby the creditors and stockholders of the company might submit suggestions for the formulation of a plan of reorganization, or of proposals in the form of plans, to the trustees, on or before August 1, 1939.

On August 1, of the same year, suggestions for the formulation of a plan of reorganization was submitted to the trustees by the Bondholders' Protective Committee and by a group of unsecured creditors made up of the Noteholders' Protective Committee, bank creditors and others.

Later in the year, on December 4, 1939, the trustees filed an amended plan of reorganization which, with other plans, was referred by the court to the Securities and Exchange Commission at Washington, D. C., for an advisory report.

On June 24, 1940, the Securities and Exchange Commission filed its advisory report, finding the trustees' amended plan of reorganization submitted to it on December 4, of the previous year, fair and feasible if amended in certain respects.

Less than a month later, on July 16, a plan amended to conform to the advisory report of the Securities and Exchange Commission was filed by the trustees with the court.

On January 10, of this year, the court confirmed the amended plan of reorganization, and set February 28, as the date on which it was to be consummated, and the new company was to be formally launched.

As outlined in the amended plan of reorganization just consummated, distribution of the securities of the new company to the creditors and security holders of the old company will begin at once.

Since the old company was found to be insolvent, no provision was made by the court for the issuance of any securities of the old company, or the payment of any cash, to the preferred and common stockholders of the old company.

Of the 1,500,000 authorized shares of new stock, 976,000 shares will be distributable to the bondholders, 348,393 shares will be distributable to the unsecured creditors, 20,151 shares will be reserved for issuance in acquiring claims of certain general creditors of wholly owned Canadian subsidiaries of the old company, and 155,456 shares will be reserved for other appropriate corporate purposes.

The new company is organized under the laws of the State of Minnesota, and has its principal office in Minneapolis, as before.

◆

POST-WAR WORK VIEWED BY THE IMPORT COMM.

In 1924, sixteen years ago, the Import Committee of the American Paper Industry was formed for the purpose of stopping a flood of illegal imports from European nations which were damaging all business in the United States.

Dumping, misclassification, and under-valuation were being resorted to, and these evasions of our Tariff laws were working havoc with American industry.

In 1923, the year before the Import Committee was formed, imports of dutiable paper totaled a value of $17,500,000. In 1939, the total value had dropped to $11,500,000. There was, therefore, produced in the United States, in 1939 alone, $6,000,000 worth of paper which, were it not for the Committee, would in all probability have been placed with foreign manufacturers. Of this amount, about $3,000,000 was for wrapping papers, $1,000,000 for book and other printing papers, and the balance in other grades of paper and board.

Computing the decrease in imports since the Import Committee was formed, there has been a total of between $60,000,000 and $65,000,000 of business placed with American mills in the years from 1924 to 1939 inclusive which, on the basis of imports in 1923, would have been purchased abroad.

Practically all of this diversion of purchases from foreign to domestic mills has been the result of the Import Committee's work in stopping the misclassification, dumping, and undervaluation of imported papers. The enforced payment of the proper duties eliminated much of the foreign competition.

Intangible results of the Committee's work are many. Not the least important is the fact that much paper formerly admitted duty free as standard newsprint is now subject to duty. This does not show in statistics. Another factor in the Committee's work is the intangible, though no less real, effect on the domestic price structure resulting from the elimination of under-priced foreign papers.

The Import Committee has also been responsible for all of the detailed work in connection with tariff legislation, such as the Tariff Act of 1930, and the efforts, even though not always effective, to prevent the wrecking of domestic markets by duty reductions through Reciprocal Trade Agreements.

While the active competition of European mills is for the time being negligible, many questions involving competition with such countries as Canada, Great Britain, and Japan are constantly arising.

When the present war ends, however, it is plain that the United States will face conditions just as serious, if not more so, than those which developed after 1918. The Import Committee is now preparing for that time. It has proved its worth in dollars and cents. No better investment could possibly be made by the American Paper Industry than to maintain its Import Committee, ready to protect it by doing everything possible to prevent the wholesale dumping of foreign merchandise which will inevitably follow the termination of the present war.

◆

BATTELLE WILL MAKE MORE APPOINTMENTS

A recent announcement revealed that the Battelle Memorial Institute in Columbus, Ohio, will make further appointments of Research Associates in the near future. An appointment as Research Associate is for one year, including vacation, and may be extended into the second year. The sal-

(Concluded on page 1216)

IXL

The Mark of Quality

FOR *Increased Production Schedules!*

IF you are concerned with the means of meeting today's ever-increasing demand for paper products and present day requirements for reduced production costs, you will find that often mill operating capacities can be increased and costs reduced by the application of high efficiency geared drives to your plant equipment.

Why don't you investigate the IXL line of geared transmissions? A complete line of speed reducers designed for continuous performance at highest operating efficiencies, including:

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Radiating Worm Powered Gears
Powered Gears • Horizontal and Vertical Worm Reducers

for

Fourdriniers — Barkers
Agitators — Grinders
Digesters — Calenders
Conveyors — Jordans

Why not present your problem to IXL Engineers today? Engineering consultation available at no cost to you.

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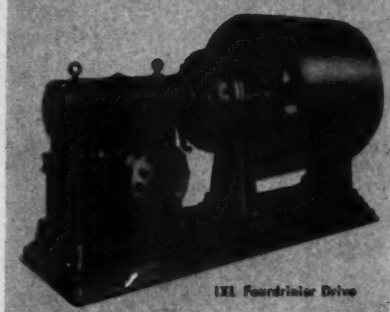
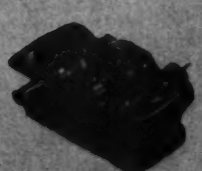

IXL Fourdrinier Drive

Heavy Duty Agitator Drive

Vertical Powered Gear

Vertical Worm Reducer


Helical Reducer

Helical Straight Line Drive

Horizontal Worm Reducer

Radiating Worm Powered Gear

The Reason Why
BWH Rotocure Process
is the only practical method of producing uniform rubber belting entirely free from press overlaps.
The problem is solved because the belting is processed on an exclusive patented rotary type press, radical in principle. Uniformity results not from the skill or experience of the operator, but from the unvarying precision of the machine. The result: a uniform belt, uniformly vulcanized and uniformly stretched, that will give uniform service.
BOSTON WOVEN HOSE & RUBBER CO.

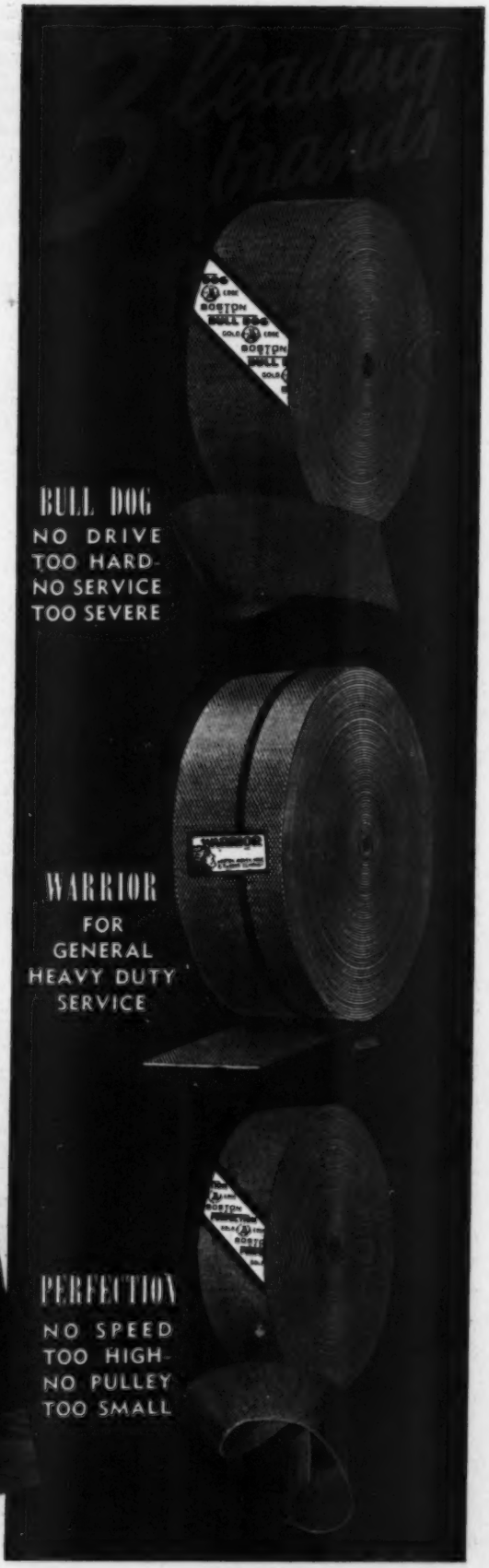
BWH

TRANSMISSION BELTING

MADE BY THE ROTOCURE PROCESS OF CONTINUOUS VULCANIZATION . . . . MEANS

Greater Belt Value

The advantages of continuously vulcanized belts and the economy which they represent in the operation of your plant cost you nothing. BWH belts, made by this process, are competitive in price. You pay no premium for this extra measure of quality and service. It is only necessary to order belting by name and specify the BWH brand which best suits your service requirements.



(Continued from page 1212)

ary is $1800. The work will consist of research projects under the supervision of the Battelle technical staff. The projects assigned are fundamental or general ones, leading to the publication of information that will be useful to science and industry.

The Research Associates are brought together for a year's experience at the Institution to help bridge the gap between the academic training and future industrial research work. The purpose is to train highly specialized research men for industry.

Young men who are university or college graduates, and who have shown exceptional aptitude for research, either in graduate work or in a brief industrial experience, are eligible. Preference will be given to those who have majored in physics, physical chemistry, organic chemistry, chemical engineering, metallurgy, fuels or ceramics, and especially those who have completed the Ph. D. training and are pointed toward a career in industrial research.

◆

FINANCIAL

A severe slump in stock market securities prices during the month was followed by a sharp recovery, but the world situation still operates to make investors chary of purchases of securities, even when the present dividend returns are at a high percentage. Paper mill securities, as a rule, followed the general trend of other industrial stocks and bonds.

American Writing Paper Corporation—Net earnings for 1940 were $89,710, as against $238,749 in 1939.

Brown Company—The operating profit for the year to November 30 was $3,093,125, as against a deficit of $1,238,872 for the preceding year.

Central Paper Company — Six months' profits for the period ending December 31 were $231,700, as against $163,400 for the same period in 1939.

Consolidated Paper Company—Net earnings for 1940 were $1,587,812, as against $933,043 for the previous year.

Crystal Tissue Company—Net profit for 1940 was $154,639 as against $118,433 for 1939.

Eddy Paper Corporation—Net profit for 1940 was $557,525, as against $328,404 in 1939.

Keyes Fibre Company—Net profit for 1940 was $245,687, as against $205,216 in 1939.

Paraffine Companies—Profits for six months to December 31 were $673,523, as against a net of $955,627 for the same period of 1939.

Puget Sound Pulp and Timber Company—Profits for the year 1940 were $762,218, as against $98,595 in 1939.

Rayonier, Incorporated—Net profit for nine months ending January 31 was $3,031,953, as against $1,425,193 for the same period of the preceding fiscal year.

Taggart Corporation—Net profit for 1940 was $549,774, as against $597,648 in 1939.

Union Bag and Paper Corporation—Net profit for 1940 was $2,129,946 as against $965,532 in 1939, despite an 800 per cent increase in taxes.

U. S. Gypsum Company—Net profit for 1940 was $7,052,974, as against $7,365,847 in 1939.

New York Stock Exchange—Stocks

	Closing Prices Feb. 25	Jan. 25
A.P.W. Paper Co.	*1½–2	*1¾–2½
Celotex	9	9½
Same Preferred	*67–69	70
Certain-Teed	4	4⅜
Same Preferred	28	34⅛
Champion P.&F. Co.	*18¾–19	19¾
Same Preferred	*104½–105	*103–106½
Container Corp.	14	15½
Cont. Diamond	7⅞	7½
Crown Zellerbach	13⅜	15¼
Same Preferred	*87–87¾	92
Dixie-Vortex	*8¼–9	*9–10
Same "A"	*35½–36	36½
Robert Gair	1¾	2
Same Preferred	14⅞	17½
Gaylord Container	10⅞	11
Same Preferred	*50–52	47½
International P.&P.Co.	12¾	13⅞
Same Preferred	61	64¾
MacAndrews & Forbes	28½	31¼
Mead Corp.	7¾	8⅜
Same Preferred	*70½–78	*73½–80
Masonite	25	28¼
Paraffine Co.	*30–32	36⅞
Same Pfd.	*101–102¾	*105¼–106
Rayonier	13¾	15
Same Preferred	*25–26	34
Scott Paper	*34⅞–36	34
Same Pfd. 4½%	*113–115	114
Same 4% Pfd.	*108–110½	111
Sutherland Paper	*21–21¾	23
Union Bag & Paper	10½	11¾
Union Paperboard	2¾	3⅛
U.S. Gypsum	*61¾–64	68½
Same Preferred	174	*177–182

New York Stock Exchange—Bonds

Abitibi 5%	44½	47⅜
Celotex 4½%	93¼	93
Certain-Teed 5½%	86½	90
Champion P.&F. Co. 4¾%	—	104½
Inter. P.&P. Co. 5%	103	102¾
Same 6%	101¾	103½

New York Curb Exchange—Stocks

Am. Boxboard	—	*4¼–5⅛
Brown Co. Pfd.	*12–14½	16½
Great Northern	*39–40	42
Hummel Ross	5½	5¾
Nat. Container	11½	12¾
St. Regis	2	2¼
Taggart	3	3
United Wallpaper	*1¼–1⅜	1½

*Closing Bid and Asked Prices.

ARMY CHANGES TO PAPER AND BOARD BOXES

In order to effect savings in time, money, space, and transportation costs, the Army broke an age old rule on February 9 when it switched from wooden packaging of army clothing to that of cardboard and fiber boxes. The Quartermaster Corps said the change was hastened by high lumber prices.

Perhaps some idea may be gained of the extent which that switch in Army specifications affects the paper board and fiber box industry when you read the following figures in an invitation bid on winter clothing which in the ordinary routine course is only part of the Army needs: There were in that invitation 975,000 overcoats, 400,000 mackinaws, 1,500,000 wool serge coats, 2,690,000 pairs of wool trousers, 1,400,000 field caps, 1,700,000 field jackets, 4,000,000 pairs of woolen drawers, 4,000,000 wool undershirts, 2,000,000 pairs of woolen gloves, 1,700,000 pairs of heavy leather gloves, 260,000 pairs of lined horse-hide gloves, 790,000 pairs of unlined horse-hide gloves, 17,000,000 pairs of woolen socks, and 2,000,000 pairs of canvas leggings.

That is rather an insignificant order because on February 3 Congress handed the Quartermaster Corps $175,000,000 to buy such equipment for the Army.

Now that the Army has changed its specifications to allow the use of corrugated cardboard and solid fiber boxes for the wooden containers previously used on Army shipments of shirts, working clothing, socks, underwear, mosquito bar, field caps, and gloves, it is anticipated that similar specification changes will be ordered so that all other types of clothing will be included.

The changes in specifications were issued after a thorough-going investigation had been made by the Bureau of Standards working in connection with technical officers of the Quartermaster Corps. These officers had the co-operation and assistance of the trained civilian experts from the office of Production Management's Division of Purchases.

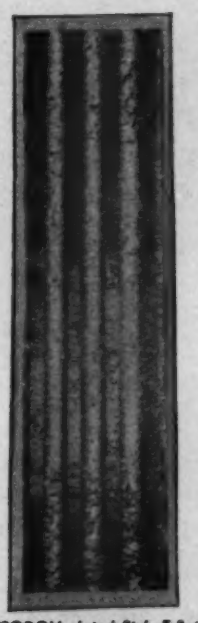
One of the principal factors in the Army decision was the fact that the National Defense Advisory Commission experts from the paper industry advised that around 78 per cent of the potential capacity of corrugated and fiber-box production was available. In other words, only 22 per cent of the present manufacturing capacity of corrugated and fiber-box concerns was in

A Question of PRODUCTION

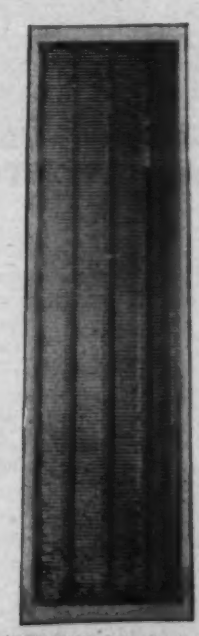
LONG-TIME performance records have conclusively proved the multiple advantages and substantial economies of modern chromium-plated screen plates.

Unplated bronze screen plate with ordinary slots, after one week's operation. Note almost complete stoppage of back slots and loss of screening capacity.

Standard bronze screen plate illustrating adhesion of pulp after one week's service. Back slots are partially clogged and screening efficiency decreased.



CRODON-plated Style E flat screen plate of conventional slot design, as removed from service after one week's operation. Note minimum adhesion of pulp, due to improved slot construction and extreme smoothness of CRODON.



OPEN-BACK Style E plate, CRODON plated (before cleaning) after one week's service. Note almost complete freedom from clogging. Compare pulp adhesion and potential screening efficiency with other plates illustrated.

WHY NOT examine BOTH SIDES of YOUR plates and compare with the conditions illustrated above ?

CRODON
The Chrome Plate

The OPEN-BACK construction (patent pending) is a material improvement over the conventional screen plate designs.

Chromium Corporation of America

Executive Offices—120 Broadway, New York

P. O. Box 1546
Waterbury, Conn.

1760 Lakeview Road
Cleveland, Ohio

4645 West Chicago Ave.
Chicago, Ill.

use on the first of February. This clearly indicated that were this type of container to be used by the Army they would be obtained in almost any quantity and with virtually little delay.

Furthermore, the investigation disclosed the fact that by shifting to corrugated and fiber containers the Army would save 8½ per cent in warehouse space. It was also found that because of the difference in weight in favor of these types of containers in contrast with wooden packages worth-while savings in the cost of freight transportation would result, particularly where such vast quantities were being shipped in solid carload lots. Of course, one of the largest savings of all was found to be the difference in the cost of corrugated and fiber containers in comparison with the cost of wooden packages.

The Army estimated, as an illustration, that it could save at least 8 cents on each blanket purchased and around 6 cents on each Army overcoat. When one considers the millions and millions of blankets, overcoats, and what not which the Quartermaster has to buy for the Army then one must stand at attention and doff one's hat at his forethought for the old family taxpayer and the paperboard and fiber container manufacturers. And this need only be the beginning, a sort of entering wedge for more Army and Navy business.

REPORT OF SULPHITE PULP MANUFACTURERS' COMMITTEE ON WASTE DISPOSAL

▶▶▶ Executive representatives of the Sulphite Pulp Manufacturers' Committee on Waste Disposal met recently to review the status of their program, which has just completed its first year. Careful study was given to the organization's several projects, plans were laid for 1941, and a policy was adopted, designed to enlist the support of large non-Wisconsin producers who may care to participate in the program.

After a series of meetings with state representatives in late 1939, the Committee was formed by companies producing over ninety per cent of the sulphite pulp produced in Wisconsin. Its purpose is to study collectively and vigorously the problem of disposing of industrial wastes. Over a period of years, individual pulp companies have striven to improve waste conditions. In several instances prodigious efforts have been made and literally millions of dollars have been expended without finding a solution which can be generally applied to the industry. The current program is an acknowledgment of the fact that waste disposal is a subject which is so complicated and at the same time so significant that it requires the combined attention of all involved.

The program, which is projected over a five-year period, may be separated into three distinct phases. The first phase deals with biological methods of waste disposal. In this direction, the Committee has already made considerable progress by completing a laboratory study of the trickling filter as a means of handling waste sulphite liquor. A trickling filter may be described roughly as a pile of rock or broken stone, each piece being from two to three inches across, the height and area of the pile depending upon the volume of waste material to be handled. The wastes are sprayed over the top of the pile and allowed to trickle down through the rock. The poluting characteristics of the waste are diminished in this process by bacterial action.

The experiments of the Committee have demonstrated that under laboratory conditions this mechanism is fairly effective in removing approximately eighty per cent of the pollution. The next step is to determine whether the method is physically and economically feasible for large scale operation. Plans are being laid for the installation and operation of a pilot plant, which should permit an authoritative conclusion on this approach.

There are other biological methods for waste disposal, and the Committee intends to investigate at least one of these, namely, methane fermentation, during 1941. Professor Busswell of the University of Illinois has done some very interesting work with this method of disposal, and the Committee has decided that the process has sufficient possibilities to justify exploring its application to waste sulphite liquor.

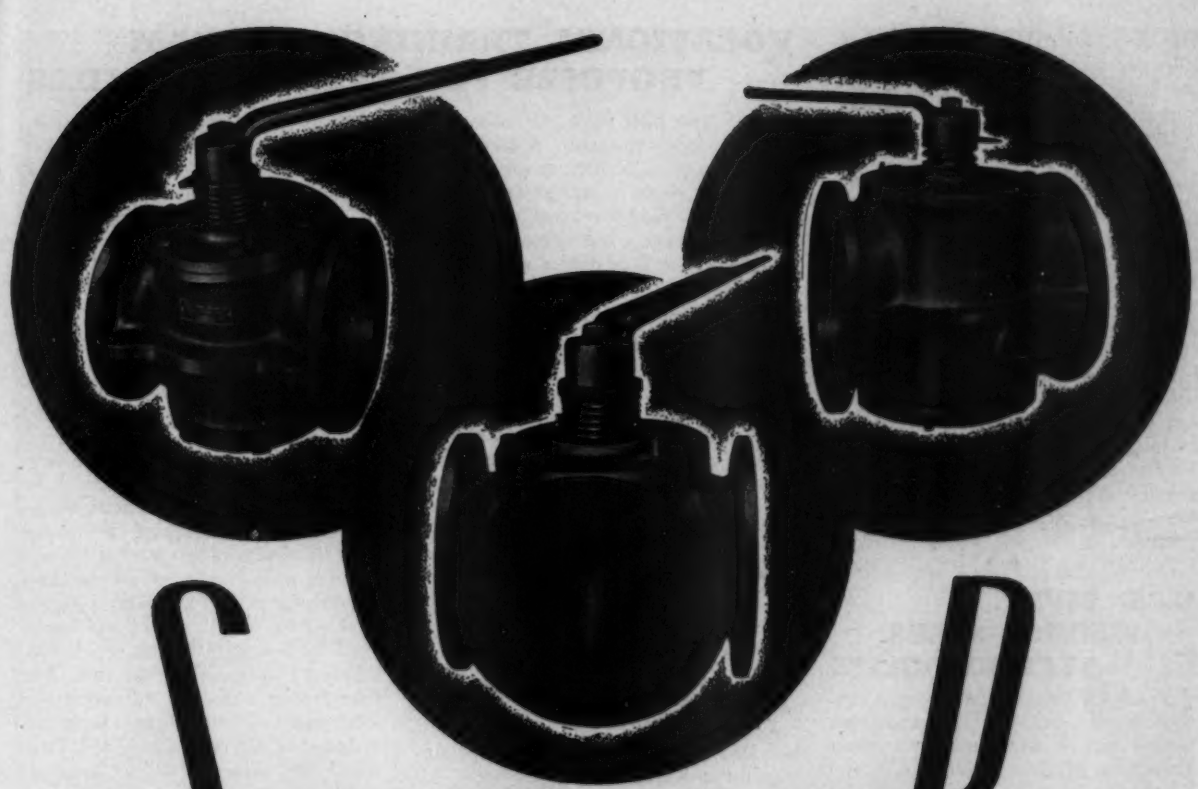
A second phase of the program relates to the possibility of handling waste liquors by evaporation and incineration. During the past year the Committee has made a very careful study of several of these methods in order to estimate their comparative merits and their practicability from economic and technical standpoints. The evidence which has been gathered is quite enlightening. Enormous capital investments would be involved in such systems, and in the absence of tangible data as to operating variables, the Committee finds that it is necessary to supplement its current knowledge by a careful study of certain large scale operations that are either under consideration or are currently in operation or in course of construction.

The primary objective of the study has been to find a suitable means of disposing of the waste liquor. A secondary objective, and one which is economically and technically more ambitious, is the discovery of some satisfactory means of utilizing the wastes. This objective constitutes the third phase of the program. Complete utilization would, of course, automatically solve the problem of disposal and at the same time would have the very desirable result of conserving greater percentages of the raw materials than present methods will allow.

As a first step in the planning of a research program, the Committee has assembled a complete bibliography of waste liquors through the offices of The Institute of Paper Chemistry, Appleton, Wisconsin. The bibliography, in book form, includes more than six hundred pages of finely condensed references to previous investigations in this direction. These previous endeavors have been studied carefully for the purpose of eliminating the least promising avenues for new research. On the basis of a critical analysis of these earlier efforts, The Institute of Paper Chemistry is now organizing an ambitious research program, to which the Committee will give effective support.

It is impossible to predict when or if the research program will culminate in a practicable utilization of waste. This is appreciated when one realizes that the field has been diligently studied for over sixty years. Recognizing the urgency of the problem, however, the Committee's program is outlined on a five-year maximum basis with the hope that some equitable solution may be uncovered before that period has expired.

While the disposal study was originally organized by companies with pulp mills located within Wisconsin, an arrangement has been made whereby out-of-state manufacturers can cooperate. Already there is one Michigan company which has joined the Committee, and others have manifested considerable interest in the program. In view of such participation, the Committee has revised its basis of assessment to permit companies of very large production facilities to co-operate upon more reasonable terms. The regular rate of assessment is ten cents per ton of pulp produced. The new plan will apply this rate of assessment to the



COMING UP

256 MIAMI PRESSURE-SEAL VALVES TO FILL ONE REPEAT ORDER!

● Imagine if you can, 256 valves for just *one* order. That's a lot of valves, yet such is the case. And of great importance to you, this is a ***repeat*** order, placed on the basis of past performance.

Miami pressure-seal valves were chosen because they have great resistance to corrosion . . . because they will not leak . . . because they operate without sticking, even after long periods of idleness.

The same superbly engineered valves (your choice of various corrosion-resisting metals and 2-, 3-, or 4-way designs) can cut maintenance costs and simplify piping in your mill. The 4-way valve in particular should interest you. It permits piping from four directions with a savings on elbows, pipe fitter's time, etc. Furthermore, less pipe friction cuts power costs.

There is nothing quite like using the correct material fabricated in a proven design. Write for details.

SHARTLE BROTHERS, MIDDLETOWN, OHIO ● DIVISION OF THE BLACK-CLAWSON CO.

Shartle Brothers

MIAMI PRESSURE-SEAL VALVES

first one hundred thousand tons of pulp per year, and after that volume has been accounted for, a maximum contribution of $10,000 per company per year will pertain. It is provided, however, that if the base rate of assessment is raised, the maximum figure will be proportionately raised.

A review of the first year of the Sulphite Pulp Manufacturers' Committee on Waste Disposal shows that considerable progress has been made on a very difficult problem. Through the efforts of The Institute of Paper Chemistry and a special consultant, considerable data have been collected, laboratory experiments have been sufficiently promising in certain directions to warrant pilot plant operation, and the groundwork has been thoroughly laid for a significant and vigorous research program.

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U. S. CIVIL SERVICE SEEKS TECHNOLOGISTS

The United States Civil Service Commission has sent out announcements stating that it welcomes applications from high grade technologists in any specialized branch. These positions pay salaries ranging from $2,600 to $5,600 a year. Applications will be accepted until December 31, 1941.

The duties of these positions include the planning, conduction, and reporting of investigation or research in a specialized branch of technology; or the testing, designing, or manufacturing of the materials essential for the successful operation of an industrial plant. All applicants must have completed a four-year college course with a specialized major study, and also must have appropriate experience in the field of technology.

Further information and application forms may be obtained from the Secretary of the Board of U. S. Civil Service Examiners at any first or second class post office, or from the United State Civil Service Commission, Washington, D. C.

◆

ACUTE SHIPPING PROBLEMS FACE B. C. EXPORTERS

Shortage of shipping is again a problem for British Columbia pulp and paper exporters. They are finding it increasingly difficult to get tonnage when they want it, and the added handicap of not knowing when shipping will be available.

The withdrawal of some of the liner space has made shipping to Australia unpredictable. Slower freighters are being considered to take the bulk of the trade in the near future. Vancouver business men are hesitating to develop the India trade because of the temporary nature of business.

The Pacific Mills, Ltd. are the only South American markets that are being supplied with business by British Columbia, the others are being passed up in order to take care of the increasing domestic demand.

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CANADA STILL SHIPS LOGS TO JAPAN PULP MILLS

Despite the fact that Canada has banned metal exports to Japan, logs are still being shipped from the forests on the Dominion's West coast to be used in Japan's pulp mills. The logs are chiefly hemlock and balsam cut from timberlands owned by Japanese at the north end of Vancouver Island. It is estimated that more than 40,000,000 board feet of these logs have been shipped during the past two years.

Vancouver Island interests have been protesting this movement of raw materials, claiming that such exports merely strengthen the war economy of a potential enemy of the British Empire. It is likely that not many more logs will be shipped as exporters are finding the cost of shipping too high. Japanese still hold about half a billion feet of timber on the Island and they will probably try to liquidate most of it in the domestic market.

VOCATIONAL TRAINING PROGRAM PROPOSED FOR KALAMAZOO MILLS

▶▶▶ A new plan for a practical vocational training program to take care of the increasing shortage of skilled men in the paper industry was recently presented to the Kalamazoo Valley paper mill managers, superintendents, and technical men at a dinner meeting in the Park-American Hotel, Kalamazoo.

Several representatives of paper mills in the Kalamazoo Valley will go to Port Huron, March 15, to meet with state education representatives to discuss the new plan that was outlined at the dinner meeting and also to inspect the vocational training program now in operation in Port Huron. It is expected that this trip will result in the presentation of a definite program for the approval of the Kalamazoo mills.

Kent Kidder of the Bryant Paper Company, Kalamazoo, chairman of the Kalamazoo Valley section of the Technical Association of the Pulp and Paper Industry, is also chairman of the Kalamazoo delegation that is scheduled to meet in Port Huron. This section of TAPPI pledged itself to co-operate with the Kalamazoo Valley mills to promote a workable vocational training program. TAPPI will work with the Michigan division of the American Pulp and Paper Mill Superintendents Association and will also give suggestions to individual representatives of the mills.

George Dean of Lansing, Michigan, trade and industrial supervisor for the state board of vocational education, is expected to participate in the tour to Port Huron trip. At the dinner meeting Mr. Dean described the Port Huron program as being a very successful trade-extension type designed to prepare journeyman tradesmen for greater responsibilities.

On the trip to Port Huron the delegation will inspect the program that is being supervised by W. L. Cassiday of the Port Huron public school system. Mr. Cassiday addressed TAPPI members and guests in Kalamazoo at a previous meeting, outlining the Port Huron program and advocating a similar system for Kalamazoo mills.

Mr. Cassiday's program is based on a four-fold purpose first, teach workers more about their regular jobs; second, acquaint workers with jobs that they might aspire to; third, point out the inter-relationship of the individual worker's duties with those of the entire mill, and the mill's part in the entire industry; fourth, acquaint the worker with the industry in general. These are the main headings of the Port Huron plan which is operated by the local public school system and supervised by the State board, which contributes 75 per cent of the cost. The Port Huron Board of Education and local mills are left to provide the remainder of the cost, which Mr. Dean stated has averaged $8 per year per man. The Port Huron program was started late in 1939 with 100 enrollees.

If paper mills in the Western section of Michigan organize such a program, it will be the first in the history of papermaking in that part of the state. A few individual mills have experimented with vocational training programs, among which are the Kalamazoo Vegetable Parchment Company, which has worked extensively along this line, and also the Bryant Paper Company. Representatives from both of these mills have expressed a willingness to co-operate in a joint program.

COLUMBIA alkalies and related products are "backstage" materials—and most important ones. They help keep nearly 3,000,000 people at work, making over fifteen billion dollars' worth of glass, soap, paper, rubber, textiles, dyestuffs and other chemicals. Without the homely products such as ours, many, many things the nation wears and uses for work and play couldn't be available so plentifully. Some couldn't be made at all.

Of necessity our products must be produced in huge quantities—and reasonably. But that's not the only reason our Barbeton, Ohio plant has become one of the country's important sources of alkalies. Industry has learned from experience that we produce these "backstage" materials by the carload as carefully as if they were made—and used—by the ounce. You'll like the way Columbia products—backed by Columbia Technical Service—do their job for you.

If it's a Columbia Product—
you're sure it's the best

SODA ASH • CAUSTIC SODA
SODIUM BICARBONATE
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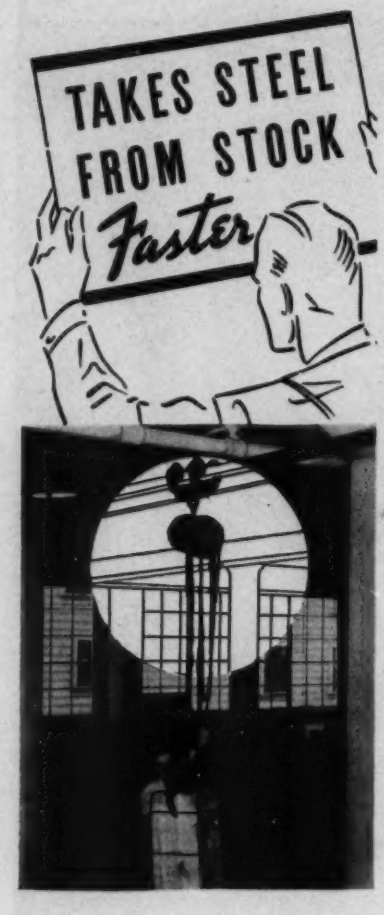

In steel warehouses, making up orders quickly is the problem. Many different items—all cumbersome, all bulky, all heavy—must be assembled from stock bins for pick-up by delivery trucks.

This California warehouse solved the problem by switching from hand handling with draw trucks to a Reading Monorail and Chain Hoist combination. With a single lift, they now take steel directly from bin to truck.

The result? More orders made up per day! Greater safety and less fatigue for warehouse men! Better satisfied, better served customers!

Want Better Handling In A Hurry?

A Reading Monorail system similar to this is one of the quickest to manufacture, quickest to install handling systems you could buy. Less maintenance, too.

READING CHAIN & BLOCK CORP.
DEPT. 42. READING, PA.

READING
Chain Hoists, Electric Hoists,
Cranes and Monorails

▶▶▶ ABOUT A YEAR AGO, the Stevens Paper Mills, Inc., bought the property of the Hampshire Paper Company, South Hadley Falls, Massachusetts, and installed considerable new machinery. This company is not only expanding that plant, but also has under construction a modern $100,000 addition at its plant in Westfield, Massachusetts.

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▶▶▶ THE WISCONSIN STATE Bureau of Sanitary Engineering has announced that a net decrease of 4 per cent in the amount of paper fiber discharged into Wisconsin streams was effected in 1940. H. A. Rothschild of the Kimberly-Clark Corporation, Neenah, acted as chairman of the voluntary advisory committee that met in Madison recently and heard reports on the subject.

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▶▶▶ THE CONTAINER CORPORATION of America, Chicago, Illinois, has recently released an informative and well-arranged publication that gives a review of the activities of this company during the year of 1940. It is handled in the form of a report and yet it is so interestingly worked out that the material is presented more in the form of a story concerning the organization and the industries affiliated with the company.

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▶▶▶ THE THILMANY QUARTER CENTURY CLUB was recently organized by the employees of the Thilmany Pulp and Paper Company in Kaukauna, Wisconsin, who have been with the company for twenty-five years or more. The club has a membership of 79, all of whom are listed as charter members. Mike Gerharz was elected president of the group, and William Voie vice president.

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▶▶▶ THE CITY OF MADISON, Wisconsin, has started a movement that may increase the use of paper in that city. The city engineer, T. F. Harrington, has announced recently that the city is considering furnishing housewives with paper containers for the disposal of garbage. The use of paper will solve the problem of wet material freezing to the metal containers that are in use at present.

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▶▶▶ THE PRATT AND AUSTIN COMPANY, Holyoke, Massachusetts, manufacturers of box writing paper and envelopes, is expanding its operations by moving to a new location that will add 7,000 square feet of space to the business. The company is also adding four new machines for making and folding envelopes.

▶▶▶ GOVERNMENT MONOPOLY over the nation's newsprint in Mexico has ended by the re-organization of the board of directors of the Compania Productra Y Importadora de Rapel, the government-controlled newsprint purchasing board. A majority government representation has been replaced by a majority publisher representation. The company when it was organized gave the government the power to control prices and also to cut off the supply of newsprint.

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▶▶▶ THE QUEBEC OFFICIAL GAZETTE announced recently that the charter of Fraser Realities, Ltd., a subsidiary of Fraser Companies, has been surrendered. Fraser Realities, Ltd., formerly owned timberlands in the province of Quebec. Last year all of the liabilities and assets of the company were transferred to the Frazer Companies and the parent company asked permission to surrender the subsidiary's charter.

BRIEFS

▶▶▶ A NEW $75,000 timber dam, 800 feet long is to be constructed by the Donnacona Paper Company, Ltd., Quebec, manufacturers of newsprint, insulating board, etc. The contract for the building of the dam has been awarded to C. Gagnon Company, Quebec City.

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▶▶▶ THE NEW $165,000 PLANT of Best Yeast, Ltd., Thorold, Ontario, has been put into operation. This yeast manufacturing plant is situated near the mill of the Ontario Paper Company from which the pulp liquor is pumped to the Best Yeast's plant. This is the second plant on the American continent to utilize waste sulphite liquor. This other plant is operated in conjunction with the Mersey Paper Company, Liverpool.

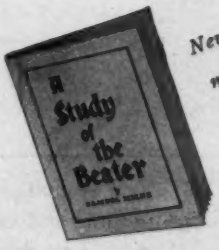
◆

▶▶▶ THE PENINSULAR PAPER COMPANY, Ypsilanti, Michigan, has just released an exceptionally well-arranged chart to aid in the selection of colored paper. The chart is titled "The 60 Second Color Selector" and that is exactly what it is because in just that length of time a color can be selected from the 103 that are displayed together with the weight, size, and grade details of the paper. With this information it is comparatively easy to choose the right color and kind of paper for the job that is to be accomplished.

37 BERTRAMS TYPE PATENT BEATERS

SOLD IN THE PAST YEAR

to do the the work of 148 Hollanders



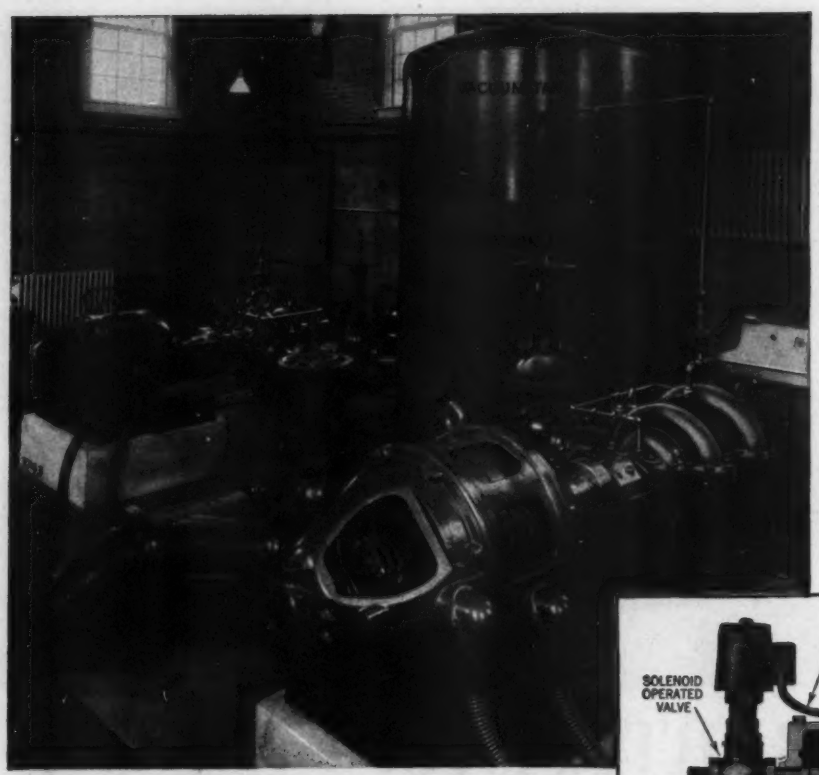
New, 64 page booklet mailed upon request.

American and Canadian mills are now ordering more Bertrams type Patent Beaters–37 in past year–than any other make. For year after year, our claim that the Bertrams Type Patent Beater would outmode all conventional Hollanders is being proved by a Hollander replacement ratio of 4 to 1, in mill after mill . . . 315 sold, all countries–with 184 repeat orders. May we relate the facts? They'll interest you.

Jones

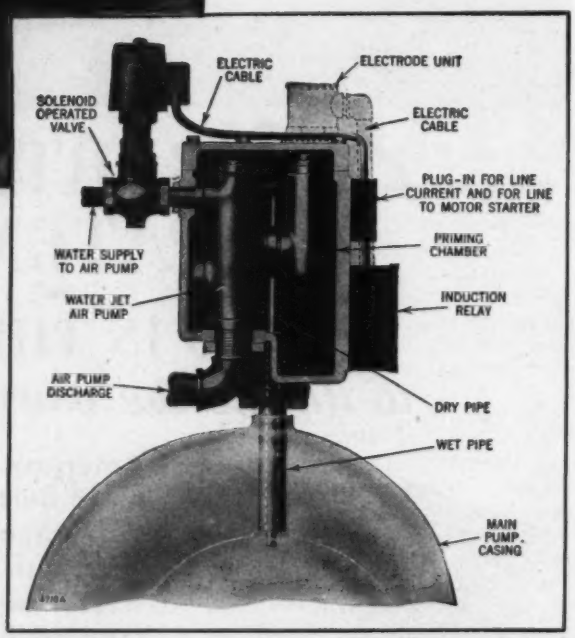
E.D. JONES & SONS COMPANY-PITTSFIELD, MASS.

Builders of Quality Machinery for Paper Mills



De Laval pumps drawing from wells through sand chamber and primed by De Laval Submerged Suction System.

Individual priming chamber on De Laval pump.



DE LAVAL

Self-Priming

PUMPS

PUMP USERS can now have, in addition to the high efficiency, accessibility, interchangeability and renewable wearing parts to shield main pump parts, for which De Laval pumps are famous, an

AUTOMATIC SELF-PRIMER

which keeps pump, suction line and all connections continuously primed, so that the pump will deliver whenever the motor is started.

This improvement is available for (1) individual pumps, (2) multiple pumps with (a) separate suctions or (b) a common suction header, (3) single or multiple pumps drawing from wells through a sand and air chamber, (4) sewage pumps and (5) pumps on shipboard.

Write for paper P-3213 read before the New England Water Works Association by F. S. Broadhurst, in which principles are explained. Also state your requirements.

HYDRAULIC INSTITUTE U.S.A. MEMBER

DE LAVAL *Steam Turbine Co.*

TRENTON, N. J.

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★ SIMPLE ★ ACCURATE ★ THRIFTY ★

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Simplicity, accuracy and real "Yankee" thrift characterize these steam-to-dryer controls for Yankee Dryers. They enable the operator to hold dryer temperature within desired limits with the added advantage of utilizing available low pressure exhaust steam. They combine controls for high pressure steam, make up and thermo-compressor control and provide for manual control when desired. All the regular features of direct setting, maximum adjustability, sensitiveness, simplicity and accuracy common to all Masoneilan instruments are included.

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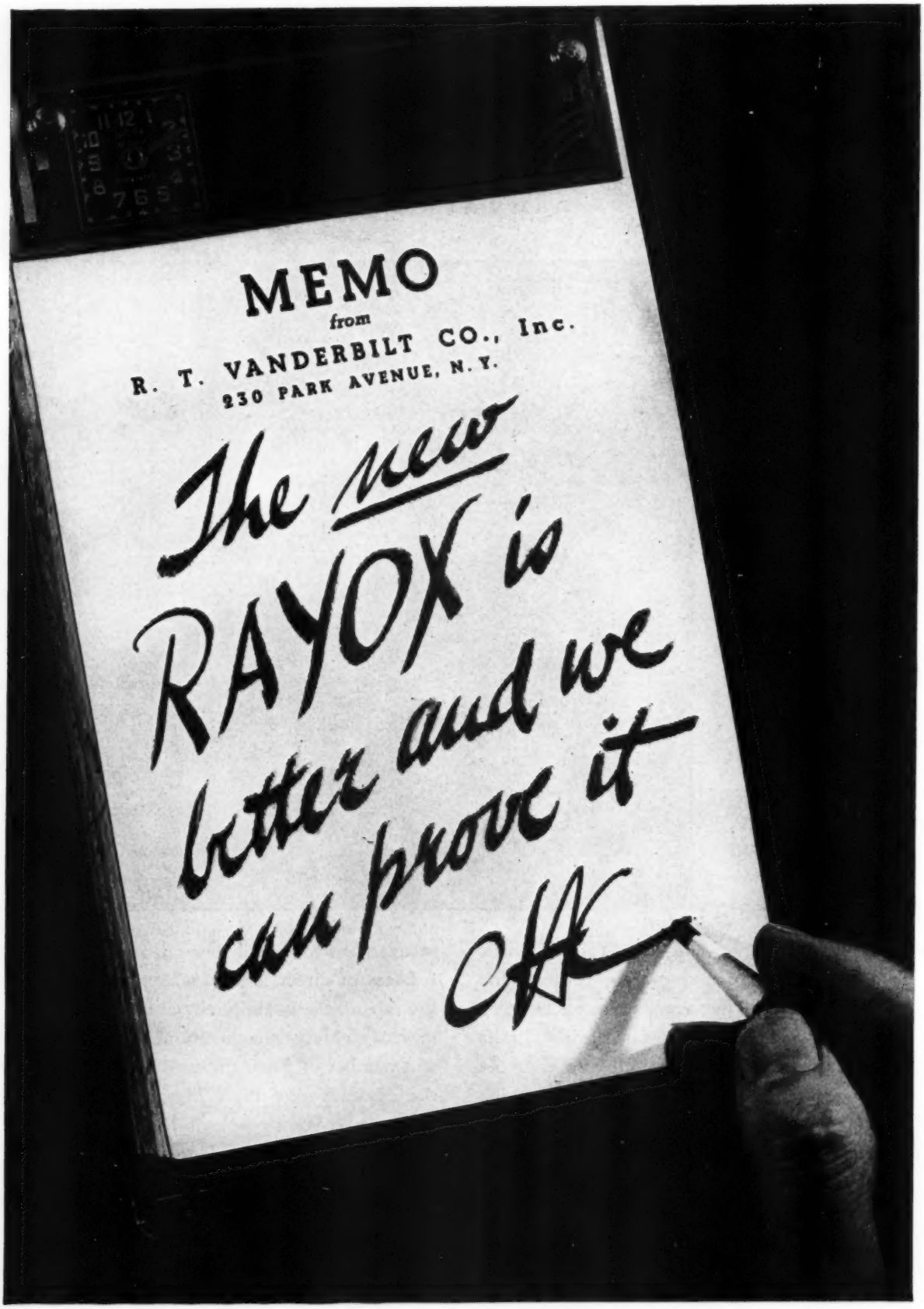
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EDITORIAL

Demand for Paper Rapidly Rising

▶▶▶ DURING THE PAST MONTH, orders for paper and paper products have increased materially. Three months ago, mills in several divisions of the industry were needing tonnage bitterly. Today, and especially for the past month, orders received each week have been sufficient to justify capacity operations and permit the accumulation of considerable backlogs. In addition, it is evident that more buyers and consumers are endeavoring to lodge substantial tonnages for future shipment. This is no sporadic demand, but is a healthy market, for none of the business is speculative. The vast amount of tonnage is wanted "now" or "should have been shipped earlier."

That a speculative demand will appear shortly is perfectly evident; however, by the time it begins to move to the mills for "hurry-up" or prompt shipment, the tonnage for current shipping will have been exhausted and the speculative orders can be entered only on the basis of "price prevailing time of shipment."

It is true there have been price concessions made in most every division during the past six months from the announced basis prices of a year ago. Now, however, these concessions are being withdrawn and prices are in the process of returning to the former basis, and these base prices in all cases represent fair and justified values. The tonnage demand conditions having changed in the past month from those extant ninety days ago, it is but natural that the prices show a hardening tendency today. While at the Convention in New York, we saw figures given out as coming from the Defense Committee at Washington. They are as follows:

In 1940, with the Federal Reserve Board figure at 122, the consumption of paper of all grades in this country was 16,500,000 tons. The production of paper was 14,300,000 tons for the year. (Both the consumption and production figures represent all-time high top records.) In 1941, with the F.R.B. index figure at 130, the consumption of paper and paper products is estimated at 17,800,000 tons.

In 1942, with the F.R.B. index figure at 148, the consumption of paper will be 19,700,000 tons.

The reason the F.R.B. index figure of production is used is because it has been found that the consumption of paper follows with uncanny exactness the rise and fall of the index figure. If the F.R.B. index on production goes up, the paper consumption goes up. If it goes down, the paper consumption recedes.

It is to be noted that the projection of the 1941 consumption of 17,800,000 tons was based upon an F.R.B. index of 130. However, advices from Washington, as of March first, put the present index at 138 for the year so far, and stated that at present outlook, the index for 1941 will be about 140, which is ten points up from the original index figure of 130. This is the reason for the recent upturn in paper orders during the past month, from way below capacity volume up to full capacity operations. If the present level holds or increases as present indications seem to foreshadow, by June, the demand for paper and paper products will be something extraordinary.

There are no stocks of paper or pulps at the mills. There are low inventories of paper in almost every position. There are no war prices on any grade of paper in any division or any position.

And, speaking of war prices for paper, we distinctly recall that before the United States entered the first World War, kraft prices were $165.00 per ton. Today, kraft paper prices are $85.00 per ton.

We fail to see how anyone, who should accumulate any inventory of paper of any kind on the basis of approximately the current prices for same, could under any circumstances that might occur in the future, consider that they had a "war baby to liquidate." The problem immediately facing every buyer and consumer of paper is "current delivery." Thirty to sixty days is the best time the mills can offer delivery at the present writing, and volume tonnage has but just started to move millward.

"More Blessed to Give"

▶▶▶ SOMEONE HAS LIKENED some people to blotters in that such people, like blotters, soak up or draw into themselves everything capable of being absorbed by them without ever giving anything to others. How many people of this kind do you know in the pulp and paper industry? How many individuals in our industry attend conventions to benefit from the presentation of papers and the discussions which follow, yet take no part either as an author of a paper or in the discussion periods? How many individuals with experience, background, knowledge and ability to write enjoy and receive benefit from the published works of others, yet never prepare anything for publication? How many individuals expect courteous and co-operative response to written inquiries they might make of others, yet give no such response when the situation is reversed? How many people in personal contact with others have many pertinent questions to ask and for which they expect a straightforward answer, yet when questioned by others have an answer stereotyped by the statement "Just because"?

It is believed that there are comparatively few such individuals in the pulp and paper industry. The average papermaker is proud of his accomplishments, and under ordinary circumstances likes to tell of them so that others may benefit. A study of the bibliographical literature of our industry will show this tendency.

Not so many years ago, so much of the information that individuals had on processes, equipment, control and other related subjects was considered stock in trade or as trade secrets. Today the tendency is to pool fundamental and more commonplace knowledge of the industry so that the entire industry may profit from it.

Such an attitude, it is believed, has contributed more than possibly can be conceived to the rapid, forward steps of the industry during the past twenty-five years, and this attitude will continue to govern expansion and technological progress in the industry.

CURRENT THOUGHT

FRACTIONS

WILLIAM SIBLEY

▸▸▸ THE BATTLE OF FRANCE revealed the mastery of machines in offense. The battle of America, if it should come, will reveal the mastery of machines in defense. Much has been said and written about America's unpreparedness. The fact yet remains, no nation on earth is so well fitted for a fight to the finish. It is true, we are not now ready for a blitzkrieg. But no other nation is so able or so qualified to produce the weapons of defense, be they machines or men. Why? Because we have learned the value of fractions.

The nation best prepared for war is the one that can produce the necessities of war with the smallest fraction of manpower and in the smallest fraction of time. The United States is that nation. Throughout our history we have made a continuous study of how to produce more and better in less time and with less expense. Today America stands as the symbol of mass production—of manufacturing efficiency. As a single instance of our productive capacity, this nation can turn out a greater quantity of steel and steel products than all other nations *combined*.

When considering national defense or talking of "unpreparedness," Americans are prone to make the common mistake of thinking chiefly of planes, tanks, bombs, shells, guns, and motor trucks. We are not to be censored for that. We are a creative not a destructive people, and being less acquainted with war we think largely in terms of the spectacular. But either defense or actual war means the speeding up of production in practically every industry. The Army and Navy buys almost everything. On the requirement list of the Ordnance Department there is an estimated 2,500,000 different items. This means that nearly every citizen in the United States becomes a part, and a vital part, of our preparedness work—of our defense plan.

At least a sufficiently large part to make it the patriotic thing for every one of us to help speed production—to strive to reduce the fractions. And we are not living in a time when patriotism was something to be worn on the sleeve twice a year, then returned to the mothballs until the next occasion. These are grave times. Patriotism and self-preservation, today, mean the same thing. It is incumbent upon *every* American, therefore, to do *everything* in his or her power to *help reduce the fractions*.

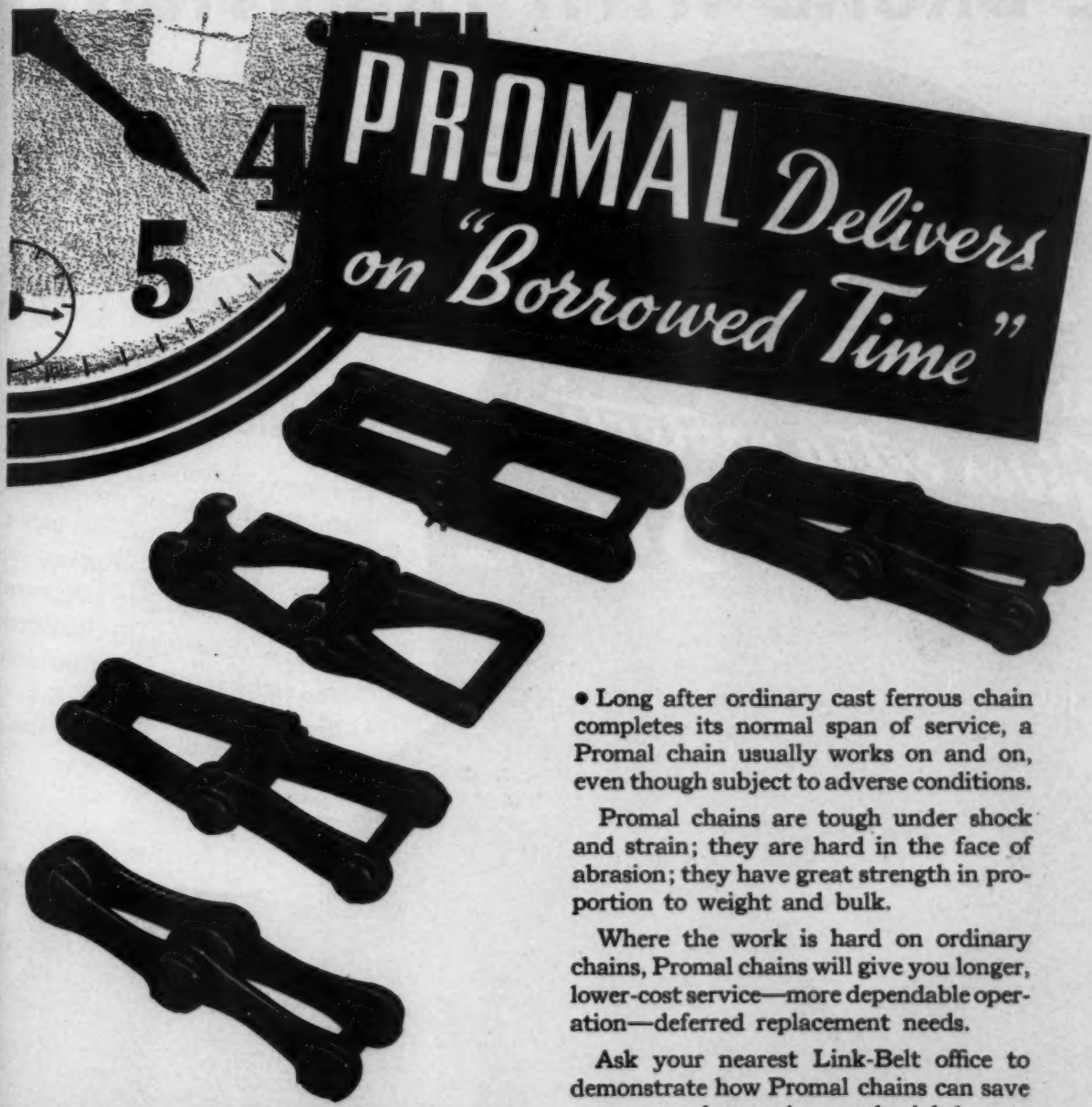
We can all best do that by employing the more efficient machines and methods already made available by American Industry. If we are handling materials with wire rope operated machines our first consideration is to reduce the frequency of machine shutdowns. Years ago wire rope was stiff, cranky, slow, and hard to handle. Now all rope manufacturers are preforming their product which not only corrects those difficulties but endows the rope with fatigue resistance to a point where it far outlasts ordinary wire rope. And that makes for fewer machine shutdowns: fewer lost man-hours: smaller fractions of time for needed production.

If those or other machines under your supervision have bearings of babbitt it might well pay to consider certain non-metallic bearings which, records show, not only last longer, but may be lubricated with water, thus saving needed oil for other purposes. If your product requires interplant or interstate transportation, it might be well to consider the adoption of Diesel power. Here is a power that is strong, yet cheap. . . . As proved by its feat, some years ago, of pulling a streamlined train on a non-stop run from Denver to Chicago in record time—at a fuel cost of only $17.

There are times in which delayed production is akin to treason. We must do everything we can to speed production, to save time, to reduce man-hours—to create smaller fractions. To do this, we must adopt better methods and superior equipment, even at the expense of discarding deeply entrenched prejudices (which sometimes seems more costly than the financial investment involved).

And these are times when we must not sneer at the word "patriotism" because today patriotism and self-preservation are one and the same. And national morale is the basis for self-preservation. We need the same sort of morale that now makes England thrill the world. . . . Years ago, when at another time the cataclysm of war reeled the world, Oliver Cromwell said to his countrymen: "Well, your danger is that you have seen. And truly I am sorry it is so great. But I wish it to cause no despondency: as I think it will not: for we are Englishmen."

We can well take Cromwell's words unto ourselves during 1941 and allow no room for defeatism in the American spirit. Of course, we should admit no complacency in the face of today's dangers, but it would be to belie our vast resources, the genius of our technical work, the inventiveness of our people, the ability of Americans to reduce the size of fractions, to doubt that we can meet successfully any problem of national defense. The surest way to reduce the duration of the present emergency is to reduce the time and cost of production.



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• Long after ordinary cast ferrous chain completes its normal span of service, a Promal chain usually works on and on, even though subject to adverse conditions.

Promal chains are tough under shock and strain; they are hard in the face of abrasion; they have great strength in proportion to weight and bulk.

Where the work is hard on ordinary chains, Promal chains will give you longer, lower-cost service—more dependable operation—deferred replacement needs.

Ask your nearest Link-Belt office to demonstrate how Promal chains can save you money by staying on the job longer.

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LINK-BELT PROMAL CHAINS

FOR CONVEYING AND POWER TRANSMISSION

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AGAINST PHYSICAL DAMAGE

One-piece cast-iron frame and cast-iron end shields protect the vital parts — from external blows, falling objects, or dripping liquids — keep them safe and secure even under slam-bang conditions. The entire stator frame, including integrally cast feet, is built to give all-round strength without excess weight.

BUILT FOR PROTECTION FIRST . . . TO LAST

....TO BUILD THIS NEW MOTOR

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Stator winding of Formex* wire—the toughest magnet wire ever developed—gives extra protection against moisture, oil, abrasion, and heat-aging. New synthetic-resin bonding varnish and Glyptal No. 1201 Red on end windings make a sturdy unit with a durable finish. You get a motor you can count on for continuous service year after year.

*Reg. U.S. Pat. Off.

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Sleeve bearings are of new design—have a scientifically determined length and diameter and a method of grooving that assures a continuous oil film over the entire bearing surface. A new and simple ball-bearing mounting assures correct alignment and exclusion of foreign materials—bearings can be cleaned and greased without disassembling.

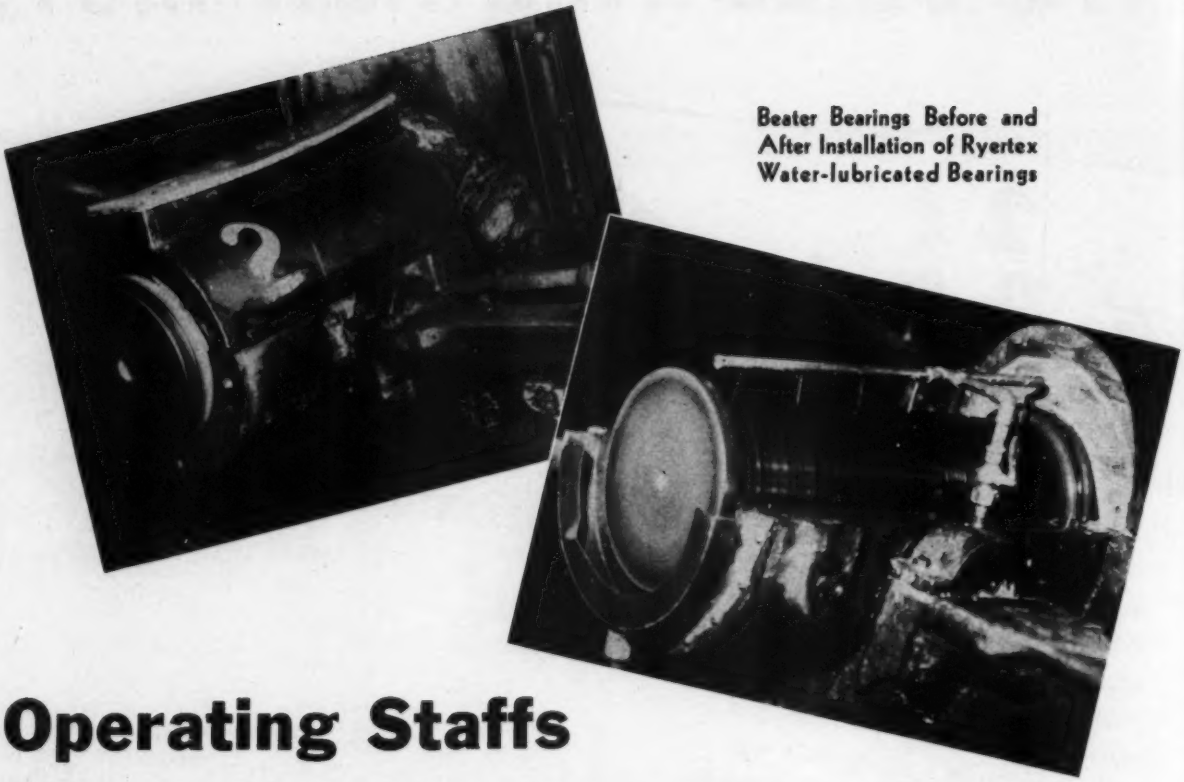
OUR field studies had shown that, more and more, the requirements of industry were demanding a vastly improved general-purpose motor, and it was apparent that this demanded a radically new approach on the part of the designer. Similarly, design studies showed that only by making a fresh start could full advantage be taken of the materials and methods that were newly available. Only by matching up *all* the new wants and *all* the new ways of doing things, in a supreme effort to make a *long jump* ahead—instead of the traditional *step* ahead—was it possible to achieve the truly modern motor you asked for.

And now you have the Tri-Clad motor—a completely new design. More than 15 important improvements have been built into it. And for the reason that so many major improvements were concentrated in one design, we had to have just that much more assurance that each one was thoroughly practical. Never before, we believe, has the manufacturer required a motor to prove itself so thoroughly in advance of initial sale.

Whatever the task you have for a general-purpose motor—whatever your special concern for appearance, convenience, quietness, *or* protection—you will find that the performance-tested features of the Tri-Clad motor will give you specific benefits on the job. General Electric, Schenectady, N. Y.

Integral-hp sizes up to 20 hp (at 3600 rpm), open and splashproof, are now available. Also capacitor motors up to 5 hp (at 3600 rpm).

GENERAL ELECTRIC



Beater Bearings Before and After Installation of Ryertex Water-lubricated Bearings

Operating Staffs Report on Ryertex Bearings . . . .

● The following excerpts are from letters written by men who have tested Ryertex water-lubricated bearings in their own mills. Their unbiased recommendations will show you how to reduce mill operating costs and improve the quality of your product.

"We find the saving in oil warrants their installation even without taking into consideration any of the other good features . . ."—PLANT MANAGER.

". . . they save power and are much cleaner when we put on a new felt."—GENERAL SUPERINTENDENT.

". . . are better than babbitt beause they don't burn out when stock and water leak through our packing boxes into the bearing."—CHIEF ENGINEER.

"Have installed Ryertex Bearings on press rolls, where formerly oil lubricated bearings caused dirty felts and oil contaminated stock."—ASS'T SUPERINTENDENT.

"After 6 years of continuous service, they show practically no wear. Now we use them on table rolls, breast rolls, calender rolls, washing down trunions, doctor blades, forming boards and linings for grinding valve cylinders, and we are constantly finding new uses for them."—VICE-PRESIDENT IN CHARGE OF PRODUCTION.

". . . they give us so little trouble we hardly know we have them. They seem to last indefinitely and are certainly superior to our old babbitt bearings."—CHIEF ENGINEER.

Write for illustrated bulletin giving complete details and case studies of Ryertex installations on Beaters, Jordans, Presses, Rotary Screens, Agitators, Grinders, Calenders, Pumps, etc.

JOSEPH T. RYERSON & SON, INC.
Chicago, Milwaukee, St. Louis, Cincinnati, Detroit, Cleveland, Buffalo, Boston, Philadelphia, Jersey City

RYERTEX BEARINGS

Highway in Corner Brook approaching Bowater's mill.

STANLEY TRUMAN BROOKS, A. B., M. S., Ph. D.

▸▸▸ NEWFOUNDLAND HAS BEEN KNOWN for its fish for the past 400 years, so some are surprised to learn that the most important industry of the great island today is paper.

But before we come to modern times let us review Newfoundland's past. It is now accepted that the first Europeans to set foot on North American soil, and, incidentally, upon the shores of Newfoundland, were the Vikings. The first to find our shores was one Bjarne in 986 A.D., and, due to his stories, Lief Ericson sailed in 1003 to explore this new land for himself. It is interesting here to note that the main interest of these Vikings[1] was in the stands of timber which they lacked in Greenland. Because of the forests they called Newfoundland "Markland," the land of forests.

Aside from the Vikings' interest in the New World, nothing more was done about North America until the 15th Century. An Italian navigator by the name of Giovanni Gabotto (John Cabot) was in the Iceland stock-fish trade[2] and had there heard of the lands to the west. The word was that the seas of the New World teemed with fish. He would sell his Bristol merchants the idea of this new source of supply, and this, we know, he did.

In 1497, the little ship "Matthew" sailed out of Bristol Harbor and fifty-three days later dropped anchor in the New Found Land of the West. From that time on, although hidden from general knowledge by the secrecy of the fishermen who hoped to escape taxation, and through the natural abhorrence of the Court historians to stoop to such vulgar items as fish and fishermen, the New World gave much to the trade of the Old. Very little is written of this period until Elizabeth, in her genius of statecraft, learned of the impending invasion of England by the Spanish. That year the fleets sailing for the new fishing grounds were instructed to remain at home and were instrumental in assisting in the warm welcome for the Dons. Every ship in those days was a warship, for every captain was a law unto himself on the high seas. Drake, Hawkins, and the names of every great warrior and pirate were common to the shores and banks of the New Found Land. It was at this time that the British Navy was born and with the accession of this new land in the West came the birth of the British Empire.

It is no wonder that the Newfoundlander is so proud of his blood. The only land of the Western Hemisphere continuously inhabited by European stock since 1500 is the great island of Newfoundland. Many illustrious ones came to the New World. Among them was Lord Baltimore, who had his estate along the southern shore of Newfoundland in 1621, but who left there in search of a milder climate in the Virginias. As the new colony became better known, more and more companies came to exploit the fisheries and the fur trade. The French and the English fought until late in the 18th Century for control of British America. The sturdy Devon fishermen had St. John's as their capital city, and it was

EDITOR'S NOTE: Most of our readers know of the two large paper mills at Corner Brook and Grand Falls, Newfoundland, but of the country itself many interesting facts have not been published. This narrative of Dr. Brooks' impressions while traveling through Newfoundland for the Government contains much information of special significance to the pulp and paper industry.

The author is curator of recent invertebrates at Carnegie Museum, Pittsburgh. It is said of this imminent young scientist that he has a flair for historical information, and that while on his expeditions he collects not only snail shells, mollusca, and other invertebrates, but that he gathers data on the countries in which he is traveling. It was through some of his published material that he was chosen by President Roosevelt to fly to Newfoundland last September to assist in picking defense bases on the island.

(1) Two flourishing colonies were then located in Greenland under Eric the Red—America's first real estate promoter and a story in itself.

(2) The split and dried fish produced in Newfoundland today is prepared by the same methods as at that early date.

Left—Looking at Grand Falls from the roof of one of the paper mill buildings. Below—The hotel at Corner Brook.

their valor and stubborn resistance that drove the Dutch, the Spanish, the Portuguese, and the French from the northern shores and made America an English-speaking nation. The French had as their capital city, the village of Placentia (probably settled by the Portuguese around 1500) in deep Placentia Bay. This they held until 1713, and during that time ruled for various periods the most of northern America.

▶▶▶ Nearly two hundred years have now flown by. In an office in London sat two brothers, Lord Northcliffe and Lord Rothermere, and in their minds was one question: Where could they find a source of paper for their roaring presses that would be untouched by the whimsy of war and continental change? The Boer War was over, but it remained green in their memory as they pored over the maps of the world. The Island of Newfoundland looked good to them. From the reports of Cormack and other explorers, they knew that the interior was covered with vast forests. The land of Cabot and the fisherman-merchant would now become the land of the Harmsworth paper interests.

Mayson Beeton (later Sir Mayson Beeton) was dispatched to investigate the possibilities of this *new found land*. What he found was good. All the timber necessary could be had on the shores of a great river that could also furnish power. The Exploits River with its Grand Falls and its two-hundred-mile length became the scene of their activity. By 1909, the first paper was produced, and from then on until the end of World War I there was a steady advance in production. The first mill had only three machines (two 156-inch machines, and one 124-inch) and a yearly production of 30,000 tons with a surplus of groundwood (10,000 tons) for export.

A railroad was built that connected the mill at Grand Falls with the port at Botwood. Due to the subsequent development of the industry and associated interests (mining, etc.), this railway today has become an entity in itself. Prior to the World War, Lord Northcliffe foresaw international difficulties and by long-range planning had a year's supply of newsprint in London at the outbreak of hostilities in 1914. Naturally, the war was not conducive to healthy business, and already technological warfare had brought sinkings of vessels and losses of cargoes. A year after war began, ships were purchased only to be requisitioned by the government in 1918. In spite of this, and in the face of reduced production, the Harmsworth brothers urged their New World workers to enlist. During the time of enlistment they paid them their full salaries.

▶▶▶ Peace came, and with it the passing of Lord Northcliffe and the succession of Lord Rothermere. Under his direction an even greater scope was planned for the mill. A new machine (the sixth, a 234-inch) was installed. This brought possible production in 1925 to 100,000 tons per year. The Anglo-Newfoundland Development Company had absorbed two other companies and now had timber rights covering 7,700 square miles. More paper was needed, and in 1929 Lord Rothermere decided, in the face of coming events that seemed to cast their shadows before them, to reconstruct the entire plant. So today one will find a set-up seldom equaled in the North, and one which weathered the world depression in a phenomenal manner.

The groundwood is produced by two plants. The one at Grand Falls, had been increased to twenty-four stones and the one at Bishop's Falls increased its output 15 per cent by the use of modern wheels. The stock produced at the latter place is pumped through a twenty-inch pipeline eleven and one-half miles to the mill at Grand Falls. An innovation in the form of an automatic booster station was located in the wilderness five miles from Grand Falls. This had to be planned to run at times in weather of 30 degrees below zero and to deliver 205 tons of pulp a day. New methods of cleaning this line were also tried with salutary results. The production from the two mills was also increased by the installation of modern screens and the daily production of each is separated and calculated by the use of weirs. In this way groundwood production checks with the paper produced to within 2 per cent. Periodic readings of the weirs give the operators immediate information on the day's production.

The sulphite mill has had a history just the opposite of the groundwood mill. Here all emphasis has been on the reduction of sulphite so that today only 55 tons of sulphite are used for

550 tons of newsprint produced. However, to obtain these results, complete modernization of the sulphite mill was necessary.

The paper mill has been extended to contain seven machines in three machine rooms. The three original machines are now supplemented by two machines installed in 1912 (which increased output to 60,000 tons annually) and by two other machines, one installed in 1925 and the other in 1933. These increased the yearly output over the 100,000 ton mark. The 1925 machine is limited by its drying capacity to a speed of 1,000 feet producing a 35-pound sheet, but the last one (1933) equipped with triple-deck dryers, is capable of the highest speeds.

Storage of stock always has been a problem, and it is surprising to find that at Grand Falls there has been a steady increase in modern storage facilities, while at the port of Botwood there has been a reduction in these facilities. Formerly the finished paper was heavily wrapped, loaded at Grand Falls, and sent to the storage docks at Botwood. There, in the antiquated storage premises, the paper was moved by truck, hoisted by elevators, and stacked by hand. Then upon arrival of a ship the paper was handled again and loaded. Today, with the buliding of modern storage facilities at Grand Falls, the paper has less wrapping and disappears immediately from the finishing room on a paper carrier. It is stored in a new shed which is capable of holding 30,000 tons; all paper is handled with cranes and paper conveyors. If, however, a ship is in the harbor, the rolls go direct to the loading platform, to cars by electric trucks, and to the ship with only one handling. At the dock, the paper unloaded from the cars is directed to the hatch loading by a track which gives a continuous supply.

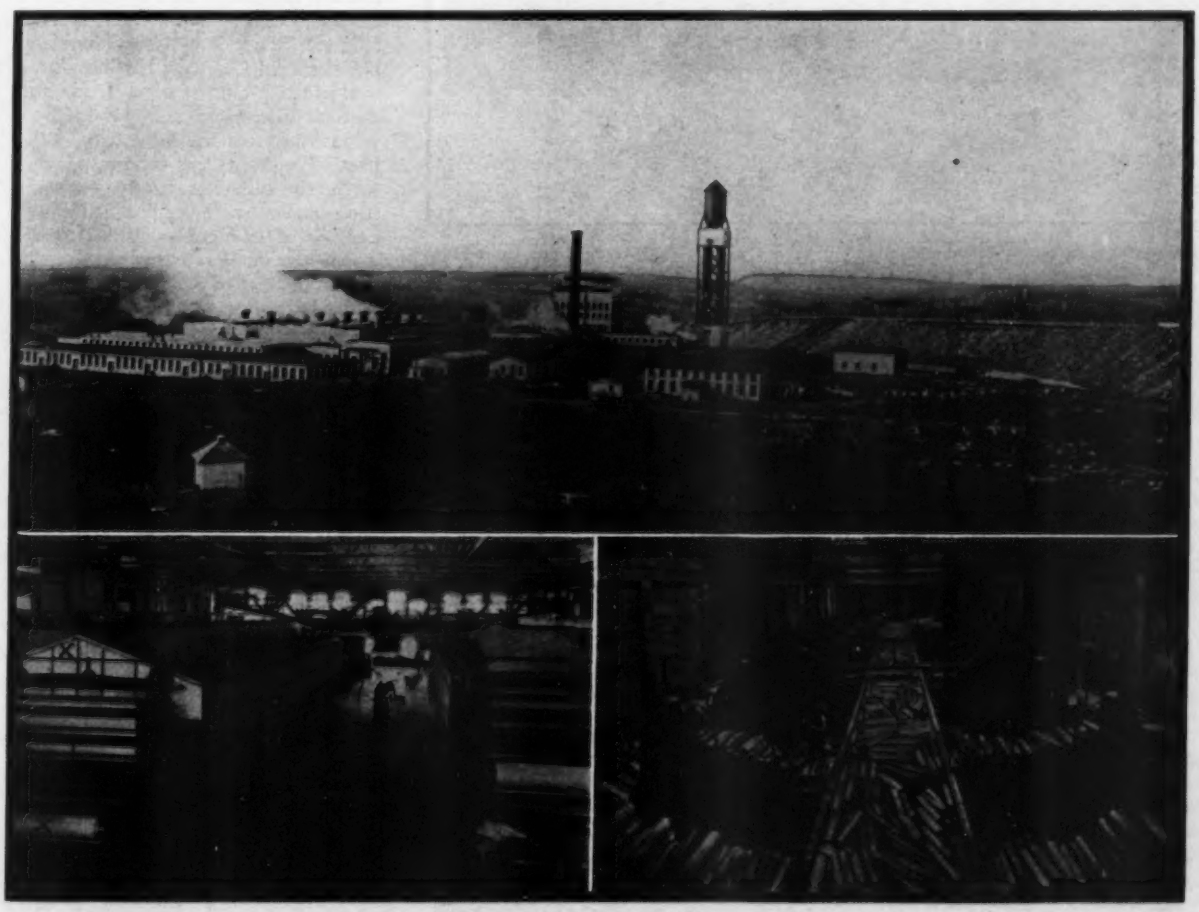
In the two ships, Geraldine Mary (sunk by enemy action in 1940 with a small loss of life), and the Esmond, belonging to the company, the most modern methods of storing cargo were used and in some cases these methods could be applied to chartered steamers. It is interesting that with the adoption of modern methods, then in use in Canada and elsewhere, a saving was made in wrapping, handling, damage, and insurance.

To supply requirements of Britain alone, twenty-nine shiploads a year made the way across the Atlantic. It is grim irony that this paper mill erected to eliminate some of the dangers of war is now involved again in the very holocaust it was built to avoid. Such is the advancing technology of war, and this should stand as a warning to others in the field.

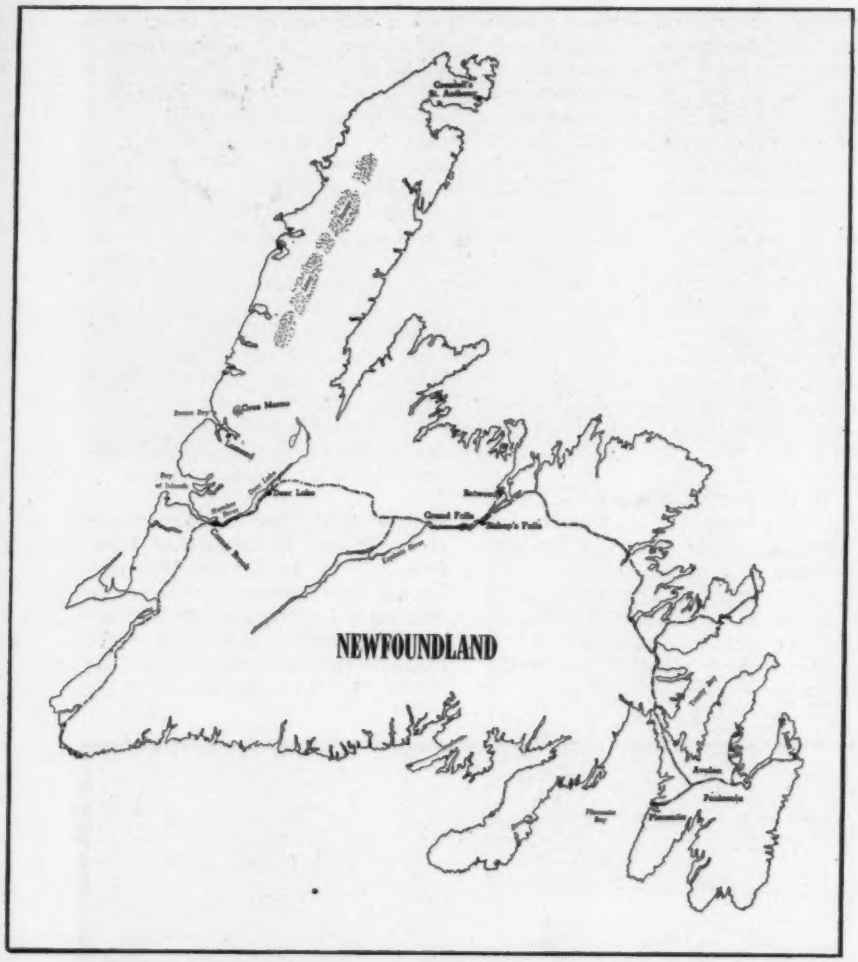
War will not relinquish its doubtful rights in the future, and through its technological development will make all future wars, world wars.

Late reports indicate a movement of more and more products of Newfoundland toward the American market.

▶▶▶ In 1903, when Mr. Beeton came to survey the possibilities of Newfoundland for Lord Northcliffe, fishing was still the mainstay of the island. The paper industry brought to Newfoundland its first conception of the country's enormous natural resources; it brought a new surge of faith in the



Above—The Anglo-Newfoundland Development Company plant at Grand Falls. Below—(left) No. 6 and No. 7 paper machines at Grand Falls. (right) Wood being conveyed to grinders in Grand Falls plant.



The total area of Newfoundland is 42,750 square miles. There is only one railroad on the island (See broken line ——.—.——).

stability and importance of the great island, and it brought practical benefits that up to 1939, inclusive, had reached the sum of $99,420,000[3] and the control of 7700 square miles of timber land. In a country of 270,000 persons, this benefit is quite noticeable.

The city of Grand Falls is one of the most interesting places in all of Newfoundland. It does not, however, present a true picture of Newfoundland, but is a gathering of workers from all parts of Newfoundland, Canada, the United States and England. When one goes out from St. John's into the villages along the shore one will find each definitely individualistic. Each has its own peculiarities of speech, its own methods of fishing, its own type of boat. An experienced traveler can listen to the language of the fisherman or look at the boats that are in use and can name the harbors and coves from which each came; Placentia western boats; Petty Harbour whale boats; and Trinity Bay boats. But in Grand Falls, and again in Corner Brook, one finds the same mixture of speech and customs one would find in a large city. Some of the papermakers are from the northern peninsula, and they may speak with quite a Cockney accent. One night when I was peacefully sleeping in the old Cabot Hotel in Grand Falls, some papermakers off the midnight shift burst into my room (one never locks the door of the room even) and grabbing my covers they shouted, "Brooks, Brooks, wike oop, wike oop; got an 'ell of an hinsect; big as a damned helephant."

I was collecting animal life in that area for the Carnegie Museum of Pittsburgh, Pennsylvania, and what they had found was one of the large hemipterous insects called the "electric light bug." On every expedition into the deep forests and along the Exploits River, I was always accompanied by the men from the mills. Happy, carefree, but skilled in their trade, these men said that the depression had hardly touched them.

Only forty miles away, along the Newfoundland Railway is the Newfoundland Airport, and from there many Canadian troops weekly descend upon the busy paper towns for a taste of "city life." Grand Falls is the fourth largest town in Newfoundland, with its 5,000 population. Modern in its stores, schools, and entertainment, it is still a paper town with buildings, homes, heat, light, and power furnished from the mills. Even though made up of "foreigners" as they call the workers from outside the district, there is a certain British reserve in the people and their customs. One must dress for a dance, even though the road is dusty and one has to walk; to dress is proper.

▶▶▶ In the forest, life is still primitive and the ever-present flies make life miserable during the warm summer months. The Anglo-Newfoundland Development Company has introduced well-situated camps, good food, and through the years has produced a woodsman from the fisherman of the past. Formerly, the fishermen came to cut the billets as winter work. If the summer had been productive, the number of laborers available for the woods was smaller. However, through the stimulation of summer cutting and with the improvement of the camps, a more efficient woodsman has been developed. Now the woods boss rides his automobile, and trucks rumble through the deep forests. But back beyond the mist filled distance, one still can find the lean-to and tent of the independent cutters.

As far as one can penetrate into the forests along the shores of the Exploits one will find the billets awaiting the scaler. Horses and, in some instances, oxen are used to draw the logs to the shore. Long booms enable one to walk across the billet-filled river at many places. This is the ancient land of the Red Indian or Beothuck; a race that became extinct during the last century. They were an Indian apart from that of the mainland and had customs peculiar to their own group. But the European, in all his civilization, could not live amicably with the poor "savage," and, therefore, caused his extinction. However, even after a hundred years the traces of the deer fences where these Indians trapped the

(3) The Buchans Mine, an associated industry on the A-N.D. acreage, expended during 1927 to 1939 inclusive the sum of $21,215,165. The Corner Brook newsprint enterprise (now Bowater's Newfoundland Pulp and Paper Mills Ltd., of London, formerly International Power & Paper Company) expended from 1923 to 1939 inclusive, some $79,334,000.

Above—Plant at Corner Brook, Newfoundland, now owned by Bowater's Newfoundland Pulp and Paper Mills, Ltd. Right—Dam at Corner Brook.

caribou, and the circles of their tepees, still can be seen.

Here in the Exploits Valley are the largest holdings of the Anglo-Newfoundland Development Company, and they claim they have a supply of timber for a hundred years to come. Early in the 1930's, steps were taken to reforest the cut-over areas, and this work will, of course, increase in volume as time goes on. Newfoundland, in her barren Avalon Peninsula, has learned a lesson in conservation. The regions stripped by the fishermen of years gone by are now desolate stone —the forest and even the soil are gone forever. With the birth of the chemical age in industry and Newfoundland's great supply of timber, it will be to her advantage to retain her fortune in natural growth.

The major forest preserves are in the hands of the Anglo-Newfoundland Development Company, but there is another large and modern mill at Corner Brook which has a capacity equal to that of Grand Falls. The mill, formerly owned by the International Power and Paper Company, is now under the house flag of the famous Bowater's (Bowater's Newfoundland Pulp and Paper Mills, Ltd.) of London. The town of Corner Brook, being on the West coast of Newfoundland and one of the main cruise stops of American and Canadian tourists, is much more the American type of small city. The people, the hotel, the hospital, the mill workers, all have that indefinable American touch that one does not find in Grand Falls. One feels that Corner Brook is not quite Newfoundland, it is not British, it is not Canadian, and not quite American. It is an admirably situated city on the shores of the great Humber River, where it empties into the beautiful Bay of Islands. It is, in fact, the most picturesque part of Newfoundland and constitutes the finest salmon and trout fishing grounds within easy access of the United States. When one has lived with a people for a long period of time there is a certain sensitivity developed that immediately impresses one when in contact with foreign forces, even when those so-called foreign forces are of one's own kind. This was my reaction to Corner Brook. When I first made my way into the domain of this huge mill it was to obtain information concerning their holdings farther north. Their maps were the only ones then made of the district around Bonne Bay where I wished to visit. So not having the happy advantage of knowing more papermakers, I was limited in my observations at this place.

▶▶▶ There are two methods of entering the Bonne Bay region. One is by a long and humpy road of sorts which leaves the railroad at Deer Lake. The other is by steamer from Corner Brook. Knowing that I would learn the road later I chose the bumbling little coastal steamer and after a long night's ride I landed in company with

the Swedish woods boss at Lomond, which is deep in the Long Range and is the headquarters of an independent logging company. It is a center of both pulp and pit-prop cutting. All around are the great hills or mountains, Tucker's Head, Kill-Devil, and farther away the high crown of Gros Morne. This is a truly remarkable region. The streams are filled with fish and the deep bay (a great fiord) has its giant tuna, its myriad herring, and flocks of water fowl.

A land of magic is Bonne Bay, but with the daylight the toil of the woods begins. Introduced to the superintendent by the woods boss, I was soon ensconsed in the staff-house. It held, I might say, the only bath tub and other conveniences that I found between Corner Brook and Grenfell's, St. Anthony. But the real thrill was the huge plate of freshly caught salmon stacked like a pink mountain on the well-laden table. The good strong tea, the heavy and delicious homemade bread, the jams from the hundreds of berries Newfoundland produces, the occasional rabbit, the honey-sweet trout, and the keen air to give one an appetite, are memories of Newfoundland that one will want to treasure forever.

Breakfast is over. The ship in the harbor is calling with its "hooter" and soon a small gasoline tug boat draws great circular booms of billets down to its side. The men, perched on slippery, half-immersed rafts float the logs together and in wet slings urge them up and onto the deck of the vessel with its complaining winches. Once in a while the sling slips and there is a scramble below as the men dodge the flying wood. This rusty tramp is bound for Scotland; a special order for fine paper. That next ship waiting will unload at Corner Brook.

The scaler is ready for his morning trip to the camps. It is his duty to measure the men's cuttings, for what is labor without the pay. He is an interesting person, and I find that his family entertained the first man ever to cross Newfoundland. Over a hundred years later, I am his guest. The truck roars and bucks over the road. One cannot sit down on the floor boards for that would immediately wreck what is left of our simian appendage. No, stand up and hang on for the next bump may be worse.

The first camp was a small one. A long log building held tiers of bunks at one end and at the other a rough table stood near the large range. Bits of masculine apparel steamed on a line over the range, and the odor of wet wool mingled with the more recent smell of breakfast. The cook handed us large china mugs, hot and steaming. Tea hits the spot on these mornings even when it is as black as coffee. Outside the horses were snaking the logs down to the shore where they were cut into billets, measured by the scaler, and then floated down to the bay to be loaded. Each stream and lake had its homemade dams and locks to aid in this process. In the winter, the independent camps continue their cutting, although this is now eliminated among the more highly organized company camps farther south. It is interesting to find the horses and oxen wearing snow shoes. These are a Scandinavian introduction and although the men claim the animals learn quickly they must present a comic if not a quite bow-legged appearance to the onlooker. The shoes are large circular pieces of steel with strong webbing and are quite indispensable because of the deep snows in this region.

On to the last camp the truck bumps its way. The earth has labored to bring up this deep growth of forest and now man labors to take it from the earth. A slender telegraph line hangs limply from topped trees or makeshift poles, but the station is some distance away. There is no doctor within twenty miles and seldom does he venture this far into the woods. Here life proceeds in the same manner as it must have been years and years ago. A little girl races with some pups and comes to meet us. Life here is primitive, but has its compensation in peace. There is always food, but not always milk (even canned milk) for the tea. One may have tobacco and a pipe; sometimes a drink of bubbling home-brew. The bed is a deep feather tick that almost smothers one, and over it hangs a smothering fly-net made of heavy muslin—rather than dainty marquisette. But the keen air, the smell of acres of false wild Lily of the Valley, the shaded nooks with Indian Slippers, the tumbling streams, the rocky road with its drowsy bees and butterflies bring contentment; so far from the busy clang of industry, one forgets that these billets being cut will, within a few weeks or months, be rolling through the presses of Fleet Street, be read and then cast aside. In all this wild beauty one only muses about the ships lying at anchor waiting for their cargoes and their days on the tossing seas. It is so far from the hurly-burly of existence. This is the very heart of Newfoundland, the heart of a Paper Empire.

A MULTIPURPOSE PHOTOELECTRIC REFLECTOMETER

▶▶▶ MEASUREMENTS OF COLOR, apparent reflectance, and specular gloss are used in the ceramic, paint, textile, paper, and chemical industries to help describe in numerical terms the appearance of materials. A multipurpose reflectometer to measure these quantities photoelectrically has been designed by R. S. Hunter, of the Photometry and Colorimetry Section of the National Bureau of Standards, and is described in the Bureau's Research Paper RP1345.

Of the many different uses of the apparatus, the following may be mentioned: The instrument measures the apparent reflectance, the hiding power, and the opacity of paints, papers, and porcelain enamels. Measurements with it will help in evaluating the efficiency of soaps and detergents for cleaning fabrics. With the proper spectral filters, the device may be used in determining the magnitude and character of color differences between samples which are similar to each other in color. Settings with these filters provide a basis for evaluating the whiteness, yellowing, fading, bleaching, bluing, and tinting strength of textile materials. With different filters, chosen to transmit narrow spectral bands, the reflectometer may be used for abridged spectrophotometry. Values of specular gloss measured with the instrument are used to evaluate the shininess of surfaces and to classify paints and other materials for gloss. With an attachment which has been designed, the instrument will measure the transmissions of nondiffusing liquids, glasses, and plastic samples.

In the reflectometer, two light beams from a single source are directed along separate paths to two barrier-layer photocells. The operating characteristics of a number of barrier-layer photocells were analyzed to determine which types were most suitable and how to use them most advantageously. A substitution null method, employing a galvanometer to indicate equality of the currents generated by the two photocells, was finally chosen. For each sample tested, there is a photometric adjustment to restore equality of currents. The amounts of photometric adjustment are measured on the direct-reading scales, one of which is used for apparent reflectance and the other for specular gloss. Because of its high precision, the reflectometer is especially suited for measuring small differences in apparent reflectance, gloss, or color of nearly identical samples.

Paint Maintenance *in Paper Mills*

R. C. SHEELER, Paint Technician
E. I. du Pont de Nemours & Co., Inc.

▸▸▸ PROPER PAINT MAINTENANCE in paper mills is a necessary factor in efficient production. Efficiency in production necessarily implies continuous and efficient operation of plant machinery and the well-being of employees.

In every painting job, it is absolutely necessary to give proper care to the preparation of the surface. Paint cannot accomplish the desired results unless it is applied on a surface properly conditioned to receive it. The surface should be clean, dry, and free from dust, grease, and dirt. Rusted and corroded surfaces should be sanded or scraped, and cleaned to the bright metal.

Emphasis should be placed on the necessity of proper film thickness to meet surface requirements, not the application of thick coats but a sufficient number of primer, intermediate, and finishing coats for greatest life and durability. Cutting the work short by omitting a coat here and there is poor policy. In many cases, practice of this kind results in a decided shortening of the life of the coating, thus developing the need for more frequent repainting than should be necessary.

For exterior painting of steel (such as conveyors, towers, supports, sash, etc.), rust and scale, as indicated previously, should be removed down to the bright metal. Then, such spots should be primed with a recommended rust-inhibiting primer, previous to the application of a finishing coat of a type to give satisfactory results under the specific atmosphere conditions of the particular area.

For exterior painting of structural steel where corrosive fumes exist, it is wise to complete the application of paint as quickly as possible in order to prevent acid deposits from forming on the surface, especially between priming and intermediate coats. Primers and intermediate coats for such application, therefore, should be quick drying. Likewise, after cleaning the steel by sandblasting or otherwise, it is advisable to apply the priming coat within four hours.

Hot liquor tanks or other metal tanks located out-of-doors should be cleaned thoroughly to the bare metal, preferably by sandblasting. Then, these tanks, if located in an area where abnormal atmospheric conditions exist or if subject to severe acid or alkaline contact, should be finished with special products designed to combat such conditions.

Interior walls, ceilings, beams, and pillars, in more or less normal areas, should present little difficulty in finishing with either gloss or eggshell whites which reflect a maximum amount of

Fig. 1—Proper effect in painting contributes to finishing room lighting.

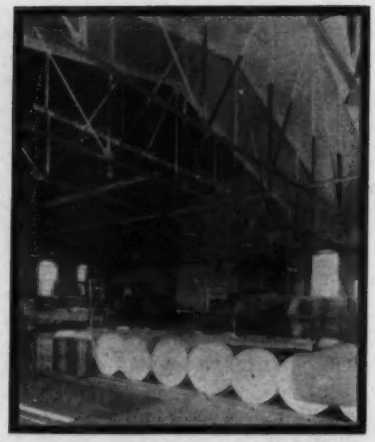


Fig. 2—Section of roll storage and roll finishing room in process of being painted.

light and are easy to keep clean. Generally, a dado finish of a selected color, with a 1½-in. or 2-in. stripe of a contrasting shade at the top, is utilized for appearance as well as utility. Such a finish, being a hard-drying enamel, is highly resistant to physical contact and is easily kept clean.

In abnormal areas, where high humidity and temperature conditions prevail, or where acid or alkaline fumes are present, white finishes should be selected for walls and ceilings—care being taken to choose a finish that will retain its whiteness and general durability a maximum length of time under these conditions.

Before painting, machinery (except wet ends of paper machines), motors, pumps, etc. should be cleaned of grease, oil, and foreign matter by thoroughly scrubbing and washing with a suitable solvent; rust spots should be sanded down to the bare metal and should be dry. Then a quick-drying, rust-inhibiting primer should be applied to all places where the old finish has been removed, and this coat followed with one or more finishing coats immediately upon drying. When the final coat has been applied, it should withstand to a maximum degree the severe exposure conditions to which it is subjected.

Paper machine wet ends should receive the same care in the preparation of surface as has been outlined, but, since these surfaces are subject to considerable water, they should be wiped as dry as possible and should be free of foreign material. All bare spots then should be touched up with a coat of primer, and finishing coats capable of withstanding constant exposure to moisture applied.

Many mills find it advantageous to identify their intricate piping systems. Usually, the body of the pipe is painted the same as the adjacent surface; and valves, elbows, and pipe, where passing through a wall, etc., are given an identifying color. Each mill has its own system of identification. However, some suggestions may be obtained from the following outline (a different shade of the same general color being advised under each classification):

Sprinkler	Red
Compressed Air	Yellow
Electric Conduit	Black
Sewer Pipe	Green
Steam	Aluminum
Return Steam	Buff
Hot Water	Gray
Cold Water	Blue
Oil	Brown

Floors as a rule are left unpainted. They are subject to so much spillage and sloppage that it is too much to expect any finish to withstand the conditions and to give an adequate return on the investment.

In many cases, the painting problems presented by pulp and paper mills are normal but due regard should be given to the choice of a quality paint, proper surface preparation, and a proper paint application, if a durable and attractive surface is to be produced. The modern paint chemist can be of great assistance in the battle against corrosion if he is given the opportunity to study conditions in a particular mill. Then, based upon his knowledge of paint products and what they will do, he can prescribe finishes, which, when applied in accordance with specific instructions, will go a long way toward reducing maintenance painting costs and will return a real profit on the painting investment.

Fig. 3—Drive side of paper machine showing effective use of paint.

A New Pulp IN THE ROOFING - FLOORING FELT INDUSTRY

UNO LOWGREN

▸▸▸ DURING THE PAST FEW YEARS a new kind of pulp has been employed as a rag substitute in the roofing-flooring industry. This fiber, prepared mainly from wood as raw material, is produced in the Asplund Defibrator*, invented in Sweden by Arne Asplund in 1931.

The process by which this pulp is manufactured is a high-temperature defibering, or pulping, based upon the discovery that wood chips and similar lignocellulose raw materials become very soft when heated to temperatures of about 170 deg. C. Pulp produced in this manner, designated as Asplund pulp, is very free, and its fibers are usually not broken up or cut as in the case with regular groundwood pulp. This latter characteristic is attributed to the fact that the binding substance between the fibers in the original wood, the middle lamella, is so softened by the heating that, as the pulping action takes place, the fibers are rubbed apart without being damaged to any great extent. A sheet formed from the Asplund pulp is very bulky and has high resiliency.

The flow-photo (Figure 1) shows how the Asplund Defibrator machine operates.

Wood chips are brought down through a hopper to a plunger feed which, in turn, feeds the chips through a narrow pipe into a preheating chamber. Here the chips are compressed to a steam-tight plug by the action of this plunger.

The preheater is steam heated—using steam of 100-160 lb. per sq. in. pressure. Thus the wood chips are heated to the saturation temperature of the steam.

The chips, traveling through the preheater, drop to a screw conveyor that carries them to grinding discs where the defibering takes place. The resultant pulp, discharged by the steam itself, passes through two valves with a discharge chamber between them acting as a lock.

The pulp is usually blown into a cyclone, or a tank, where a water spray forms a water suspension of it.

Figure 2 shows a general layout of an Asplund Defibrator installation; Figure 3, a typical installation of an Asplund Defibrator in a roofing felt mill.

The total power consumption required by the process to prepare pulp suitable for roofing felt furnish is about 160-180 kw-hr. per ton of bone-dry pulp; steam consumption is about 1500 lb. per ton of pulp. From one cord of wood (128 cu. ft.), about one

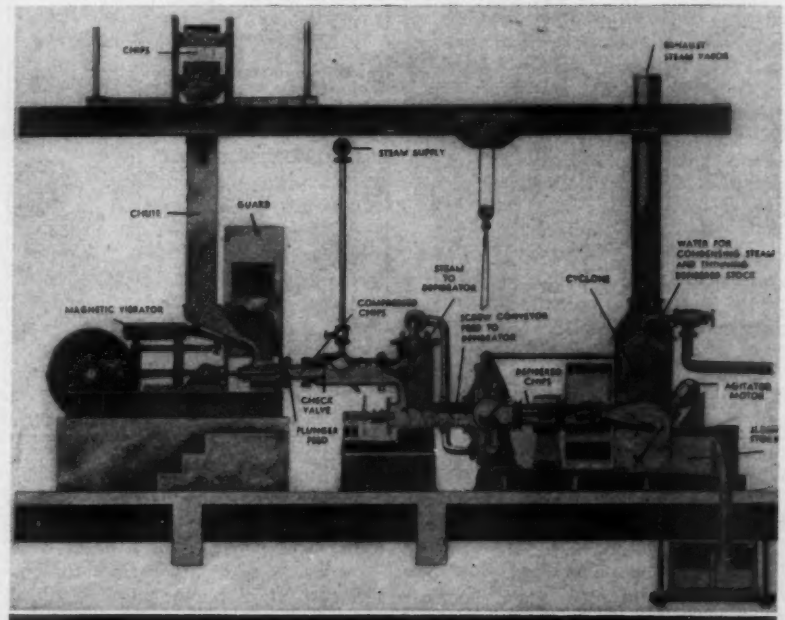


Fig. 1—(above) Cross section of Defibrator showing action from chips to slush stock. Fig. 3—(below) Roofing felt mill installation of Defibrator.

(*) *The Asplund high-temperature pulping process and the Asplund Defibrator machine are disclosed in U. S. patents No. 2,008,892 and 2,145,851.*

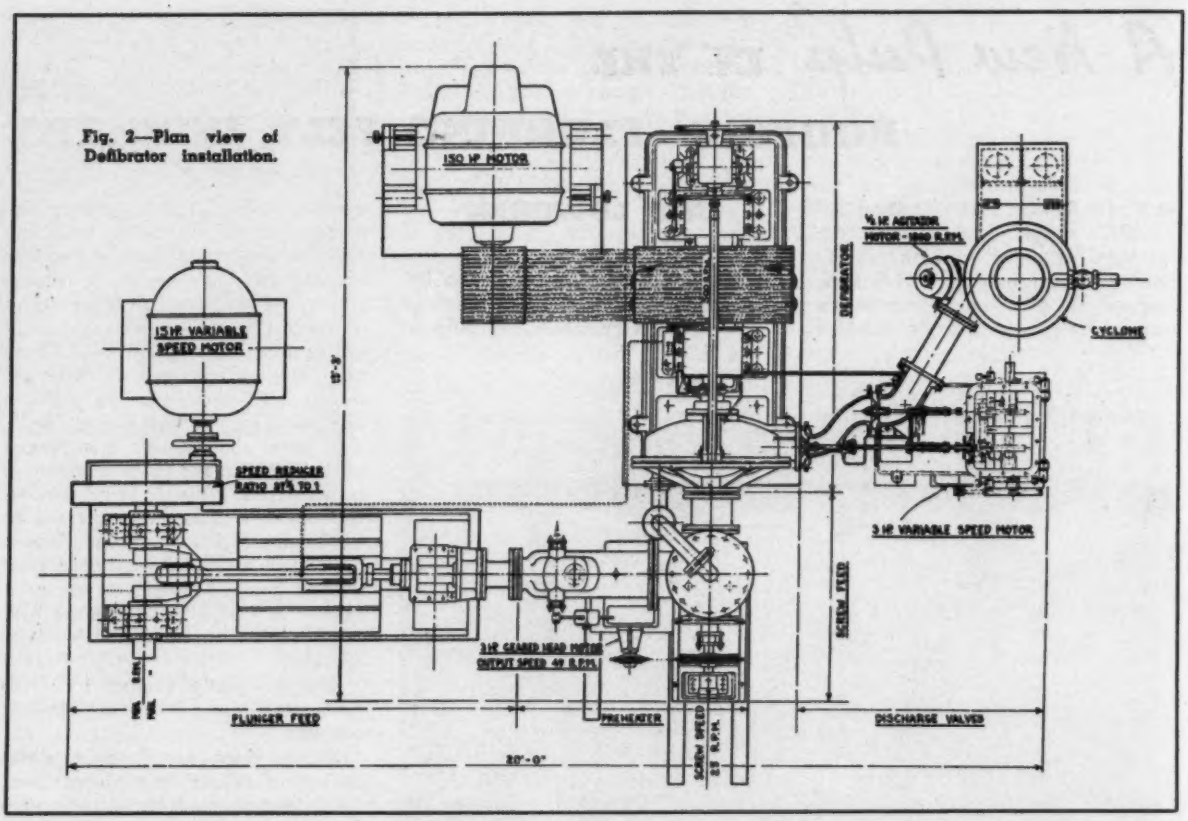


Fig. 2—Plan view of Defibrator installation.

ton of bone-dry pulp is usually obtained.

Practically any kind of coniferous or deciduous wood, such as hemlock, southern pine, spruce, maple, poplar and oak, can be pulped by this process. All of these different woods can be used in the roofing-flooring felt industry. Raw and even unpeeled wood is used, and no extra pretreatment is required. Local waste wood of low value can often be utilized for the manufacture of Asplund pulp. The wood is chipped in the ordinary way by a chipper; and the chips, sometimes screened to remove long slivers which may be broken up in a disintegrator and then pulped.

Ordinarily, Asplund stock in a roofing plant is delivered in slush form to a storage chest from which it is pumped into a mixing box where it is mixed with rag stock. The mixed stock is then refined in a jordan. In some instances, the Asplund pulp is passed through a jordan previous to its blending with the rag stock. No additional beating of Asplund pulp is required.

The amount of Asplund pulp that can be used in roofing and flooring felts varies with different felt specifications. It also varies when different woods are used as raw material. About 20-25 per cent of Asplund pulp is the usual average in roofing felt; but 30 and even 35 per cent can sometimes be used for certain grades of felt.

The percentage of Asplund pulp for flooring felt is more limited, about 15-18 per cent.

Asplund pulp has a tendency to open up the felt; i.e., increase its porosity. High porosity is desired for these felts where quick and complete asphalt saturation is required. On the other hand, too high a porosity offsets the strength of the felt but porosity can be regulated by the addition of waste paper.

The limitation of the combined amount of waste paper and Asplund pulp is determined by the desired stiffness of the felt. This stiffness is increased as waste paper and, to some extent, as Asplund pulp is added. Attempts are being made to produce a softer and more pliable Asplund pulp that will not have any increased stiffening effect upon the felt.

Recent work with this production of softer Asplund pulp in mind has resulted in a process where chemicals are employed and whereby a semi-chemical Asplund pulp has been produced. This semi-chemical pulp can be utilized at a much higher rate in roofing felt than regular non-chemical Asplund pulp. Its use, therefore, seems to open up new possibilities.

The United States production of Asplund pulp in roofing and flooring felt manufacture is now about 100,000 tons annually.

Newer Glycerine Applications *in Paper*

GEORGIA LEFFINGWELL, Ph.D.

▸▸▸ DURING THE PERIOD since the role of glycerine was previously reviewed in this journal (*1*), a survey of recent industrial and patent literature indicates this material has further diversified its applications, both in pulping processes and in a variety of special papers.

Of special timely interest under current conditions is the utilization of glycerine by European investigators (*2*), who, perhaps, realizing the possibilities of pulpwood shortages, undertook to study the potentialities of other fibrous plant materials. In these studies, oat, barley, rye and wheat straw, wood shavings, reeds, and potato plant tops were digested with glycerine and with aqueous glycerine solutions, with or without the addition of small amounts of organic and inorganic acids. Reactions were carried out at 135-160 deg. C. under pressures of 1.5-2.5 atmospheres for 20 to 30 minutes. The ratio of cooking liquor to raw material varied 20:1 to 33:1 and the cellulose yields were about 50 per cent on the basis of the raw materials. The addition of mineral acids tended to decompose and carbonize the residue, but the use of organic acids, such as formic and acetic acids speeded up the digestion. The residue, it was found, could be defibered easily after digestion. The addition of an equal amount of water to the glycerine resulted in better pulps than were obtained with glycerine alone, although pulp yields and digestion periods were the same for both the aqueous and non-aqueous pulping agents.

What may well be another important use for glycerine in pulping procedures is given by Grogaard, (*3*) in his studies of continuous sulphite digestion. He reports that ideal conditions for sulphite delignification with sound spruce wood seemed to be attained when an evacuated experimental digester allowed the chips to become rapidly impregnated with the cooking liquor, and where the digester was immersed in a glycerine bath and moved about gently. An hour at 170 deg. maximal temperature then gives "ideal" delignification under these conditions with a normal cooking liquor and the resulting pulps, after bleaching, contained about 92 per cent alpha-cellulose.

The place of glycerine among the materials utilized for the production of various new special papers, fancy papers, and coated papers, is also of interest. Thus, in one patented method (*4*) for treating paper to render it soft and flexible, there is applied a solution containing 72-80 fluid ounces of water, about 28 fluid ounces of glycerine and from 14 to 16 ounces of a finely-divided, water-insoluble inorganic filler such as magnesium silicate, which is capable of absorbing the paper-softening agent. In another case (*5*), water-permeable, flexible paper of high wet and dry strength is made by impregnation with glue containing glycerine, after which the paper is dried and the glue air-hardened. Then the surface only of the dried glue in the sheet is treated with formaldehyde, the excess removed and the sheet rapidly dried to prevent too deep a penetration of the formaldehyde.

The use of glycerine for proofing papers against grease, moisture and the like is another case in point. One typical glycerine-containing compound (*6*) for proofing paper by impregnating the fibers is prepared by adding 5 parts of glycerine, 1 to 2 parts of hydrogen peroxide and 4 parts of 40 per cent formalin to 7 parts of glutin that has been swollen for 24 hours in 83 parts of water and heated to 60 deg. C.

Although in most instances, glycerine is added to paper proofing compounds as a plasticizing agent to maintain the flexibility or softness of the fibrous materials, in many instances, particularly in grease or oil proofing, glycerine itself often acts as an adjunct barrier or impermeabilizing substance. A case in point is a method (7) for coating the interior of laminated paper containers with a continuous greaseproof film formed of:

Animal glue	1 part
Glycerine	0.1 - 5 parts
Formaldehyde	0.5 -15 parts
Water	2 -15 parts

This is heated to a suitable reaction temperature to render the film insoluble.

A growing application for glycerine is its utilization in processes and compounds for fireproofing paper. In one instance, (*8*) a suggested fireproofing composition for paper and other materials can be prepared by causing an aluminum salt, ammonia and glycerine to react together. Further specialized treatment may be employed to render the paper both fireproof and waterproof. In another case (*9*), flameproof and moisture-resistant coated paper is made by impregnating the fibers with a flameproofing composition containing ammonium sulfate protected by a network of glycerinated gelatin. The paper is then provided with a waterproof rubber coating. Such a paper is particularly suitable for wrapping or for making bags or boxes. Other combination proofings, such as waterproofing and greaseproofing, in one or separate operations, likewise call upon the several properties of glycerine, particularly its softening and plasticizing action. (*10, 11*)

Further illustration of the usage of glycerine in special finishes and coatings is a paper with a highly reflecting surface made by coating the surface with a solution such as one containing nitrocellulose, acetone, methyl alcohol, water and glycerine (*12*). When paper is to be impregnated with a thermoplastic material such as cellulose acetate, a resin or halogenated rubber, one patent (*13*) specifies that the paper base be first impregnated with glycerine, the base heated and then have pressed into it a heated sheet of the thermoplastic material.

Numerous paper specialties call for the inclusion of substantial quantities of glycerine to maintain or to impart certain desired characteristics. Citing a few examples from the current patent literature will readily indicate the diversity of such glycerine-employing paper specialties. Thus in the manufacture of paper carrier sheets for tacky rubber, a chemical wood pulp paper is deeply impregnated with glue, casein or starch made flexible by a compatible agent such as glycerine. It is afterwards calendered on both surfaces and coated on one surface with a special lacquer containing a small proportion of nitrocellulose and other suitable constituents (*14*). Glycerine is also used as the flexibilizing agent in processes for making saturated paper gaskets (*15*). In a patented method for making sausage casings and the like, comprising thin paper strips with overlapping margins, the paper tube, after suitable treatment with a cellulose ether coating compound, is passed through a glycerine-containing bath and then dried (*16*).

Adhesive tapes usually include glyc-

erine to keep both the bonding agent and the paper support pliant and flexible. A remoistening tape, in which the adhesive is mainly converted British gum, is specified to contain from 1 to 10 per cent of glycerine in the bonding medium (*17*). Interesting, too, is a special adhesive for securing paper to glass, metals and other surfaces (*18*) consisting of:

Glue	100 parts
Glycerine	400 parts
Calcium chloride	37 parts

Fiberboard, pasteboard and cardboard further diversify the place of glycerine in modern paper manufacture. A recent patent (*19*) for making unified paper that is highly resistant to splitting or lamination specifies that a porous web of paper of a bibulous character be impregnated with a proteinous solution of water containing a plasticizing agent, such as glycerine. The solution contains approximately:

Glue	1 part
Glycerine	1.75 - 4 parts
Water	3.5 - 6 parts

The web must be so dried that definite, specified quantities of the impregnant are retained by the paper. In another recent instance (*20*), a laminated material suitable for oil containers and the like, utilizes an oilproof amorphous surface layer made from a specially prepared sodium silicate solution and smaller amounts of gum arabic, glycerine and soap.

The glycerine-containing, alkyd-type resins continue to find growing application in paper treatments and processes. It is hardly feasible to go into a discussion of the properties of these synthetic resins, except to point out that when suitably modified, these products are adaptable to an ever-widening range of uses. A glycerine-phthalic acid resin, modified with one or more drying oils, is combined with chlorinated rubber, a suitable plasticizer and a wax to produce a composition for waterproofing paper. This composition, dissolved in a volatile hydrocarbon solvent, may be applied by brushing or spraying or by passing a continuous web of the material through a bath of the solution (*21*).

A somewhat similar combination of ingredients, this one, however, employing glycerine abietate, has been patented for making transparent, flexible, moisture-resistant coatings on papers such as glassine paper (*22*).

New uses also have been found for glycerine-containing reagents in the paper laboratory. Describing a new method for differentiating between pasteboard and natural, unlaminated carbons, Faldner (*23*) points out that since starch is generally used in laminating sheets to form cardboard, it is advisable to tear a sample strip on the bias, thus exposing all possible layers. Tests for starch are made with a very dilute potassium iodide-iodine-glycerine solution. The number of original sheets pasted together is one more than the number of dark blue lines obtained.

In the examination of writing papers by means of the pen-stroke test, Noll (*24*) employs a specially devised drawing pen together with a reagent containing:

Trypan blue (medicinal)	10 gm.
Glycerine (31°Be.)	10 gm.
Phenol	1 gm.
Water, to make	1 liter

This standardized procedure, he states, gives reproducible results.

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MAINTENANCE OF HAND FIRE EXTINGUISHERS

▶▶▶ MANY LINES OF industry are operating at peak capacity under the pressure of the national defense program, and in other lines production is up as the result of this stimulation of the nation's buying power. Such activity in the past always has been accompanied by an increase in the number of industrial fires. Therefore, the Safety Research Institute, New York City, has published the following warning for the care of hand fire extinguishers:

Fire extinguishers, to be instantly available for use at all times, must be properly recharged and inspected. The date of recharging should be noted on the tag provided for that purpose, along with the name or initials of the men doing the work.

Fire insurance underwriters recommend that only recharging materials and replacement parts furnished by the manufacturers of the extinguishers be used in service work. Full instructions for recharging the various types of extinguishers are given on the labels and they should be followed to the letter.

When the 2½-gal. units are recharged, all parts should be washed thoroughly in water and the water drained through the hose. The shell should be examined to make certain it is sound at the seams, for, after all, it is a pressure container. The head gasket and hose should be examined for signs of deterioration, and the strainer should be cleaned.

When the cap is screwed back on the shell, the worker should make certain that at least four threads are engaged. A small amount of Vaseline may be placed in the threads to make the task easier and facilitate removal for the next recharging.

All chemical solutions should be mixed in clean containers and not in the shell of the extinguisher, and the container should be carefully rinsed before being used for a new solution.

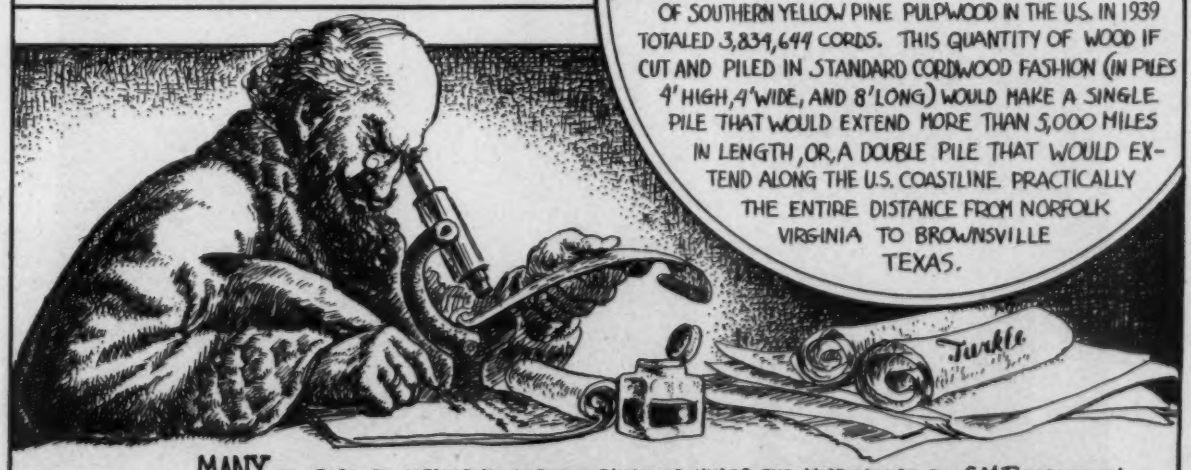
Only liquid obtained from the manufacturer should be used in the vaporizing liquid type extinguisher. The use of commercial carbon tetrachloride, which may contain some water or chemical impurities, is likely to damage the interior of the extinguisher, or, if used on live electrical equipment, endanger the operator.

PAPER SKETCHES

SUCH MODERN PAPERMAKING TERMS AS "COUCH," "TOUR" AND "QUIRE," IT IS SAID, CAME FROM HUGUENOT PAPERMAKERS WHO EMIGRATED TO ENGLAND FROM FRANCE IN THE 1600'S TO AVOID RELIGIOUS PERSECUTION.

A "PIECE" OF WALLPAPER AS SOLD TO ENGLISH PRINTERS DURING THE 1770'S CONSISTED OF 12 SHEETS OF DOUBLE DEMY, SIZE, 35" X 22½," PASTED TOGETHER TO FORM A STRIP 11½ YARDS LONG.

CONSUMPTION OF SOUTHERN YELLOW PINE PULPWOOD IN THE U.S. IN 1939 TOTALED 3,834,644 CORDS. THIS QUANTITY OF WOOD IF CUT AND PILED IN STANDARD CORDWOOD FASHION (IN PILES 4' HIGH, 4' WIDE, AND 8' LONG) WOULD MAKE A SINGLE PILE THAT WOULD EXTEND MORE THAN 5,000 MILES IN LENGTH, OR, A DOUBLE PILE THAT WOULD EXTEND ALONG THE U.S. COASTLINE PRACTICALLY THE ENTIRE DISTANCE FROM NORFOLK VIRGINIA TO BROWNSVILLE TEXAS.



MANY SAMPLES OF MEDIAEVAL PAPERS EXAMINED UNDER THE MICROSCOPE BY C.M. BRIQUET IN 1884, CONTAINED ONLY FLAX AND HEMP FIBRES. NO TRACE OF COTTON FIBRE WAS FOUND IN ANY OF THE SAMPLES.

Patriotic Colors & Wartime Economy at

ANNUAL PAPER WEEK

▶▶▶ PATRIOTISM, AND THE EFFECTS OF wartime economy on business, dominated the annual convention in New York of *American Paper and Pulp Association, National Paper Trade Association* and the *Technical Association of the Pulp and Paper Industry*. Even the exhibit floors flashed red, white and blue wrappings, Cellophane, bags, paper cups and other products. Almost every meeting of the four days brought up National Defense and its effect on the paper business.

A high point was the annual luncheon of the *Salesmen's Association of the Paper Industry*. Guest speaker was Thomas Dunning Galbraith, M. P. and Commander in the British Navy. "Almost too late," he said, "Britain realized her error, realized that disarmament does not mean peace, realized that safety today depends on our being able and willing to fight to defend not only our country, but the things in which one believes. Today, the British people face the fortunes of total war with stoical fortitude . . . war which, as conducted by Germany, spares neither age nor sex." John L. Riegel, president of the A.P.P.A., also spoke briefly after the SAPI luncheon.

Whether it was Commander Galbraith's speech or the natural generosity of paper men, the luncheon guests walked into the arms of a couple of determined and decorative young ladies collecting for a British relief organization and left them enriched by some $150.

At the meeting preceding the luncheon, SAPI elected John D. Johnston of Gaylord Container Company as its new president. Vice presidents are Cortney H. Reeves, of Allied Paper Mills, and Norman T. Beardsley, Union Bag Paper Company. Assistant vice presidents are Burt B. Fisher, of Bergstrom Paper Company, and Stanley O. Styles, of Martine Cantine Company. At the meeting, a gold medal was presented to each of the past presidents.

Opening the general meeting of N.P.T.A., President P. W. Lesh pointed out "we are facing a critical period and seem to be facing another business and national crisis." It was at this meeting that the customary routine was broken for a few minutes for a worth-while event. President Lesh called Miss Isabel Shepard to the platform and presented her (assistant to Secretary Arthur H. Chamberlain) with a check in recognition of 25 years of service to the association.

Despite all the stress on patriotism and wartime economy and its effects, one of the outstanding speeches of the convention was by Arthur H. Motley, vice president Crowell-Collier Publishing Company. It was much more of a challenge than a plea to salesmen to "sell" themselves and their chosen work as a "profession." He pointed to the acclaim for industrial genius, industrial research in the present emergency, but said that "nobody has issued a call for the mobilization of us (the salesmen) in this crisis. Nobody has said that without this sterling, wonderful, colossal, gigantic group of intellects, we are going to fail and yet when this party is over we are the guys that are going to pay the bill. We are the guys that are going to sell the goods that are going to keep employment; to keep the wheels of industry and everything else turning; that are going to provide the taxes and whatnot to pay for this party. . . . Now, it gives me a little

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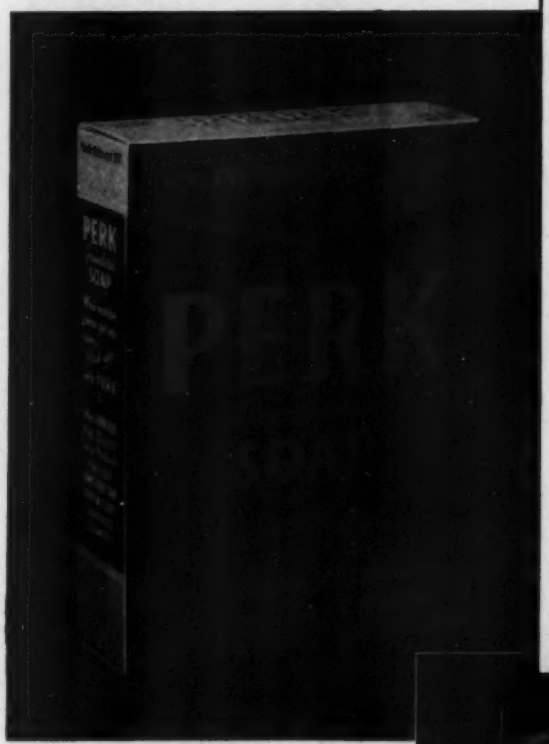

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Dr. Theodore N. Beckman, professor of business organization, Ohio State University, who spoke at the meeting of the National Paper Trade Association.

pause and I think it should you fellows to realize that that situation exists. I think it is our own fault, I really do. I think it is our own fault because I don't think we know or have any appreciation of the contribution that we have made in the life of this country . . . I want to sell you guys an idea. If I can sell you that idea and maybe get you a little on fire about it, and you can sell it to other people maybe over a period of years, we are going to win for ourselves what I believe we should have."

He urged his audience to try "selling" their work as a profession and a contribution to the national welfare and progress by doing it first with their wives and families. After that, he said, try it out on your business associates.

He pointed out that industrial genius and inventions are not enough. They have to be sold to more and more people. He cited the example of Howe and the sewing machine and the long period it took to introduce it. Nothing happened until the peddlers of that time began to go out and tell the story of the sewing machine over the countryside, and yet it was something for which the world has been waiting for a long time.

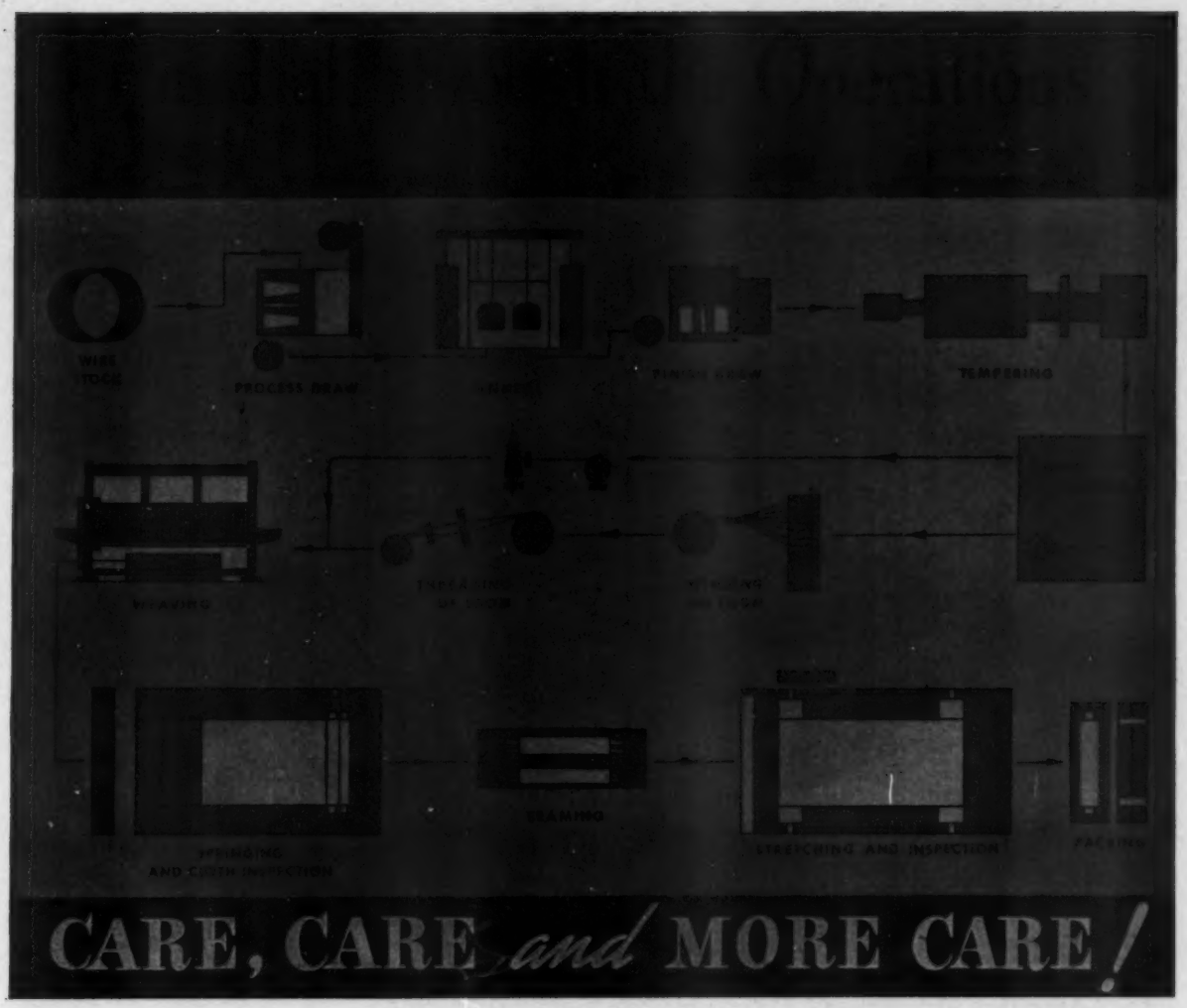
▶▶▶ Addressing the Sulphite Paper Manufacturers Association, James Donaldson, president, Stora Kopparbergs Aktiebolag in Sweden, said that "many of you will soon feel the pinch of an insufficient supply of pulp and more particularly as regards the many special grades you normally use. . . . But when peace comes, what then? . . . The Swedish industry is thoroughly cognizant of the many changed conditions that their industry will face in the future. . . . If the market demands which followed the ending of the last world war are any guide to the coming post-war period, and they well might be, there will come about a great demand from all parts of the world for wood pulp and lumber to the extent that accumulated stocks will soon disappear."

After listening to a member of Con-

Arthur N. Motley, vice president, Crowell-Collier Publishing Company, told the Wrapping Paper Division to sell salesmanship as a "profession."

gress dwell on the golden opportunity for America to participate in the peace to come, at an N.P.T.A. meeting, Dr. Theodore N. Beckman, professor of business organization, Ohio State University, said: "I am worried about what will happen now and in a few months. We'll talk about peace later on." He pointed out that we are mobilizing economic forces and men, but we still need much better mobilization of public opinion. Considering the war's effects on business, he made certain forecasts for the rest of this year. He predicted: (1) business prosperity

J. L. Riegel, president of the American Paper and Pulp Association, speaking at the Luncheon held at the Waldorf-Astoria. At the speakers' table (L to R) are: George H. Mead, who also spoke at the luncheon; E. W. Tinker, executive secretary of the Association; F. G. Robinson, president Canadian Pulp and Paper Association; and D. C. Everest, a past president of the A. P. P. A. and Group Executive of the Pulp and Paper Section, National Defense Advisory Commission. Inset—Mr. Mead addresses the Luncheon.



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with the Government spending billions; (2) national income up by as much as 10 billions of dollars to about 85 billions for 1941; (3) prosperity certain from increased industrial production. "We are beginning to change from a buyer's to a seller's market," he said, "and I need not tell you what that means."

But while most were viewing with alarm or curiosity the future under wartime economy, the Writing Paper Manufacturers' Association not only

President Riegel in conference with E. W. Tinker, the Association's executive secretary, in Mr. Tinker's suite at the Waldorf.

listened to certain predictions of the future, but celebrated the association's Eightieth Anniversary. This was done at a special meeting at the Waldorf, and with a dinner at the St. Regis Hotel roof, where the leading speaker of the occasion was General Hugh Johnson. Only a few old-time paper men were invited to the dinner aside from members. Among these were H. A. Moses, president of Strathmore Paper Company, who is in his seventy-ninth year and been in the business for fifty-eight years, and R. F. McElwain, vice president and general manager of Crocker-McElwain Company, who has been in the paper business for sixty years.

When it came to re-electing officers, both the N.P.T.A. and the A.P.P.A. demonstrated that we Americans don't like to "swap horses while crossing a stream." The N.P.T.A. returned the 1940 slate headed by President P. W. Lesh and the A.P.P.A. re-elected John L. Riegel.

Important news from TAPPI, meeting at the Hotel Roosevelt, was the absence of the usual medal award. It seems that the medal, given for outstanding achievement, is not awarded unless there has been some real achievement in the field. At the annual luncheon, Elmer W. Peterson, Associated Press, Stockholm, Sweden, discussed the foreign situation, and D. C. Everest, past president of A.P.P.A. and group executive of the Paper and Pulp Section of the National Defense Advisory Commission, spoke on National Defense and the Paper Industry. Mr. Everest pointed out that, although the industry includes in its ranks both defense and non-defense materials, all will be affected by present activity. The defense branches will be directly affected. The non-defense branches will feel the effects in various ways including possible "raids" on its own skilled labor supply.

Numerous interesting and important technical papers were read during the four days of TAPPI sessions. One paper drew considerable attention. It was a discussion of "Volume-Costs-Sales Relationships," by Benton R. Cancell of the A.P.P.A. He pointed out that the paper and pulp industry has emphasized sale and volume of production rather than maximization of profits. This, he believes, has been caused by relatively high fixed costs and lack of thorough cost accounting.

Another interesting paper was on "Patents and Preparedness" by Charles W. Rivise, of Caesar & Rivise, who said that the creation of a favorable patent situation would be facilitated if the industrialist would adopt the golden rule as to his competitor's inventions and respect them. He also suggested that there should be a firm policy of securing licenses wherever possible.

Arno W. Nickerson's paper on the "Chemipulper" attracted considerable attention. He described the process as basically a combination of continuous cooking under controllable conditions of time, of treatment, pressure, temperature and chemical concentration plus controllable refining under pressure.

Up in the exhibit area at the Waldorf, L. H. Myers, advertising manager of the Herz Manufacturing Corporation, enjoyed a happy inspiration. In the company's suite were a dozen prize homing pigeons ready to deliver orders to the plant on West 138th Street. It seems that one of the plant employees is a carrier pigeon fancier and breeder and he keeps his birds on the factory roof. So, all that was necessary was to transport the pigeons to the Waldorf-Astoria, attach an order to the pigeon's leg and toss the bird from the window on the ninth floor. Running time was normally about five minutes by pigeon "express," a distance of about five miles.

An old-fashioned general store was operated by Central Safetex and they had a slot-machine, too. Winners on the slot machine were paid off in candy and tobacco from the store's stock. The Self-Locking Carton Company not only had an exhibit of its pressed pulp egg cartons filled with 28 dozen wooden eggs, but there was a punch-board too. Everybody got two punches and might win anything from a bill fold to a two-suit alligator traveling bag. Lily-Tulip ran a milk bar and mixed chocolate malteds in the new "direct" mixing cup that is put into the mixer with the ingredients and when they are mixed, passed right on to the customer. *Better Packages* was on hand as usual decorating each caller with a red or white carnation. At Royal Paper Company, Miss Beryl Finch was enthusiastically telling callers about Cellophane for drapery and wrappings with a stripe of silver printed on it. Then too, there was the exhibit of wrappings made by Royal for leading department stores of the country, especially on Fifth Avenue. With the package wrapped in De Pinna paper was the blue ribbon awarded by the National Retail Dry Goods Association for the best.

It was a well-attended and busy convention with new records of registration set by TAPPI and N.P.T.A. The Paper and Twine Club staged its annual contribution of fun, food and frolic in the grand ballroom on Wednesday, and by Thursday afternoon, the annual paper convention was becoming a part of history. The registration desks were being folded up for 1941 and the association secretaries and their assistants were wearily wending their ways homeward.

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A.P.P.A Convention

Pledges Support of National Defense

▶▶▶ CO-OPERATION WITH THE GOVERNMENT in furtherance of the National Defense Program was the rallying theme of the sixty-fourth annual convention of the American Paper and Pulp Association in the Waldorf-Astoria Hotel, New York City, on February 16-20 inclusive. That was the keynote sounded by President John L. Riegel at the Association luncheon meeting in the Grand Ballroom of the hotel on the first day of the convention, at which the four-day gathering of the nation's paper and pulp manufacturers was officially opened. Afterward it was the principal subject of the several speakers who addressed the Association and its divisional bodies, and was a main topic of discussion at the meetings of the various affiliated groups which make up the parent American Paper and Pulp Association.

The convention was particularly well attended. Old-timers in the industry who have attended the annual paper and pulp get-togethers for many years asserted they could not recollect so large a crowd at any previous convention. There were present leading paper and pulp mill officials from practically every section of the country or at any rate every part of the United States where paper and pulp is produced. Moreover, it was an enthusiastic, yet nevertheless a serious-minded convention.

John Lawrence Riegel, president of the Riegel Paper Corporation, New York City, was re-elected president of the American Paper and Pulp Association to serve his second yearly term. The following A.P.P.A. vice presidents were elected for 1941:

D. K. Brown, Neenah Paper Company, Neenah, Wisconsin.

Hugh J. Chisholm, Oxford Paper Company, New York City.

Richard J. Cullen, International Paper Company, New York City.

D. C. Everest, Marathon Paper Mills Company, Rothschild, Wisconsin.

P. H. Glatfelter, P. H. Glatfelter Company, Spring Grove, Pennsylvania.

Ralph A. Hayward, Kalamazoo Vegetable Parchment Company, Parchment, Kalamazoo, Michigan.

W. B. Merlin, Hollingsworth & Whitney, New York City.

John R. Miller, West Virginia Pulp and Paper Company, New York City.

W. I. Osborne, Jr., Cornell Wood Products Company, Chicago.

Cola G. Parker, Kimberly-Clark Corporation, Neenah, Wisconsin.

Norman W. Wilson, Hammermill Paper Company, Erie, Pennsylvania.

D. L. Stocker, Michigan Paper Company, Plainwell, Michigan.

J. D. Zellerbach, Crown-Zellerbach Corporation, San Francisco, California.

E. W. Tinker was re-elected executive secretary.

The customary program of the convention was altered this year. Instead of the usual afternoon open general meeting of the American Paper and Pulp Association on Wednesday or

John L. Riegel, re-elected president of the American Paper and Pulp Ass'n.

Thursday of Convention Week, the luncheon meeting on the opening day was held. The Waldorf-Astoria's Grand Ballroom was nearly filled for this event. Presiding was President Riegel, seated at a long table on the dias at which were about a dozen of the Association's vice presidents or other leaders of the industry. Opening the meeting, following the serving of luncheon, President Riegel spoke in part:

▶▶▶ "I am not going to give you a detailed report of the past year's activities. These were largely covered in an annual report sent you last month, and well-worth studying. Instead, I am going to tell you what has impressed me most about the Association during the past year.

"A very large part of the work of running the Association falls on the Secretary. Mr. Tinker has done that work remarkably well.

"For better organization, it seemed wise to define the work of counsel; a special committee was appointed to assist in this and to fix a fee for counsel commensurate with the work they are to do. I believe that the central organization of the Association is on an effective and economic basis today, and we are striving to further improve it.

"Because the American Paper and Pulp Association grants no memberships to individual companies but derives its support from the divisions, it goes without saying that the Executive Committee believes that support of the divisions and the A.P.P.A. should go hand-in-hand.

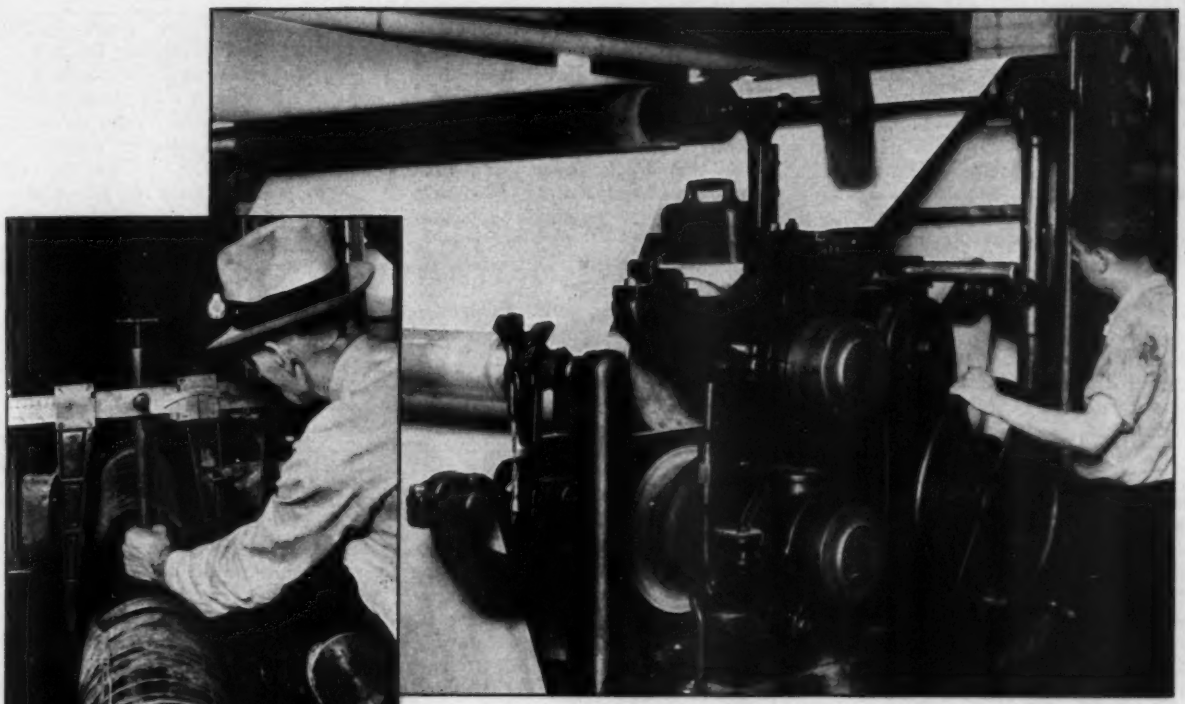
"The central organization deals with general industry problems. The divisions deal with problems related to the specific products of their particular branch of the industry. I do not question that an individual mill may disagree completely with some policy of the Association, but that does not relieve the mill of its obligation to strengthen the position of the paper industry by supporting the American Paper and Pulp Association.

"When a mill does disagree with an Association policy, the Executive Committee and the staff welcome constructive criticism for they realize their responsibility in planning policies that will be for the greatest good of the industry.

"The Association's standing, its statistics, and its long background of sound relations with the Government, are of inestimable value to the industry. I want to urge each mill to give full support to the American Paper and Pulp Association."

President Riegel called on E. W. Tinker, executive secretary, for a review of the Association's activities for the past year. Secretary Tinker said in part:

▶▶▶ "Mr. Riegel has requested that I report to you at this time the activities of the American Paper and Pulp Association over the past year. This



AMERICA EXPECTS EVERY MACHINE TO DO ITS DUTY

A National Emergency has small patience with sit-down strikes, whether of men or of machines. Down time for adjustments, slow speeds for slow drying, excessive breakage due to poor formation of the sheet, needless waste of fuel resulting from inefficient performance at the wet end — all these sabotage the National Defense Program. • Put your paper machines into top efficiency. Regrind rolls and bearings to correct uneven wear and faulty alignment. Install Hamilton Felts and run full speed. • You will find Hamilton Felts remove more water, faster. They deliver dryer sheets of better formation to the driers. They reduce broke and prevent costly shut-downs for adjustment. They cut fuel bills. They are as tough as Australian soldiers. They do their duty — and then some.

From the thinnest tissue to the heaviest board there is a Hamilton Felt that will do your work better, faster and at lower cost.

SHULER & BENNINGHOFEN, HAMILTON, OHIO

Miami Woolen Mills

Hamilton Felts

Established 1858

request was, I believe, inspired by a general criticism in the industry that it was not informed sufficiently concerning the work of the Association and its necessity from an industry standpoint.

"Among the major, non-recurring activities that have engaged the attention of the Association has been the active relationship of the industry to the National Defense program. At the outset, contracts were made with the National Defense Advisory Commission to determine how the industry might best co-operate. As a result of the relationship established, thanks particularly to the very constructive attitude of Mr. T. B. McCabe, the Association took part in the joint preparation of a careful analysis of the pulp supply situation with the chief purpose of determining the adequacy of this supply under the radically changed conditions that existed because of the cutting off of European supplies. Subsequent meetings were held with representatives of the Defense Advisory Commission to discuss the findings of this report and, conjunctively, the price situation that had developed as a result of the impact of the war in Europe. Since that time the Association has prepared a report covering paper, including not only capacity for production of an adequate supply to meet normal national demands, but additional demands as well, and indicating the importance of the paper industry to our national life and to National Defense needs. This report has been accepted by the National Defense Advisory Commission, after review by co-operating agencies, and it is hoped will be of value not only in connection with National Defense developments, but in considering the priority rating of the paper industry, as necessity forces the establishment of industrial priorities.

"The Association co-operated with the industry representatives appearing before the Wage and Hour Administration in its consideration of the minimum wage for the primary pulp and paper industry. This co-operation took the form of planning and organizing the industry's presentation, and the furnishing of pertinent statistical information relating to the minimum wage situation in the primary industry.

"The presentation of evidence before a Trial Examiner of the Wage and Hour Administration, in an attempt to clarify the definition of executive, administrative, professional and outside salesmen in the industry, was accomplished in co-operation with the National Association of Manufacturers and the Committee on Manufacturing of the American Paper and Pulp Association. The importance of this decision is well known to all of you.

"The fact that the Association has been able to obtain promptly, decisions of the Wage and Hour Administrator, and when necessary, interpretations of these decisions and keep the industry currently informed, has, I hope, been of real value to the industry and prevented difficulties that would inevitably have arisen in individual company cases, regardless of the best intent. This activity continues of current importance.

"During the past year the Association, through a co-operative arrangement with the Forest Products Division of the Bureau of Foreign and Domestic Commerce, has been able to keep the industry currently informed of the trend of events in Scandinavian countries and in Europe in general, relating to both the pulp and paper industry.

"The Association gave its endorsement and support to constructive stream pollution legislation—legislation that would enable the orderly solution of this problem as techniques were developed without disruption of employment or inordinate expense that must in a low profit industry, such as the paper and paperboard industry, ultimately be passed on to the consumer. By the same token, the industry was equally active in opposing what it considered to be obnoxious and unreasonable legislation that would have been impractical to carry out and enforce, and the enactment of which would have adversely affected the public welfare.

"A net weight law was proposed in New Jersey which specifically mentioned certain grades of paper. Had this law been enacted, it would have substantially changed the current practice in the sale of certain paper grades. Upon the request of the Association, a hearing was held in Trenton, New Jersey, at which selected industry representatives appeared and presented the case of the industry. The hearing was successful in securing the removal for the time being of all paper items, pending subsequent consideration.

"A definite, national move is being initiated by certain organizations and individuals, which would in practice eliminate experience of merit rating systems in the States under State Unemployment Compensation Laws.

"In opposing legislation that would do away with merit rating systems, the Association is working in close co-ordination with other agencies that appreciate the value of continuous industrial employment as contrasted to the semi-relief systems offered by public agencies.

"I would be seriously remiss if I did not mention the activities of the Traffic Committee of the American Paper and Pulp Association. The success of this committee in obtaining the simplification and clarification of the freight rate structure as it relates to groundwood, printing, writing papers, etc., has been a monumental contribution to the industry as a whole.

"The proposal of the Interstate Commerce Commission to investigate the freight rate structure of the entire country east of the Rocky Mountains involves considerations that might, if improperly developed, affect the entire economics of the marketing of paper products in the United States. The Traffic Committee of the Association is carefully studying the issues involved.

"During the past year, major economic studies were compiled and given to the industry covering taxes, as related to the industry, economic trends and labor conditions within the industry, a study of the financial situation of various paper company operations, and numerous other analyses. The current work being accomplished by means of industry contributions made through the budget of the American Paper and Pulp Association and under the guidance of its Technical Committee, working directly with the Institute of Paper Chemistry, involve instrumentation research and biological control studies, as well as the work of classification and definitions.

"Mr. Riegel has issued a report covering the activities of the Association during the calendar year 1940. I am sure that a review of this report will indicate clearly the distinction between the work of the divisional associations supporting the American Paper and Pulp Association and that of the parent association itself. Since the parent association deals exclusively with over-all industry problems, or problems involving more than one of its divisional associations, it must of necessity have less personal relationship with individual company problems. However, it seems perfectly clear that individual company knowledge of industry trends is increasingly important. The over-all industry statistics compiled by the American Paper and Pulp Association are devoted specifically to the purpose of promoting such knowledge. The increasing impact of policies and legislation of the National Government upon the industry is known to every thinking executive in the industry. As a business proposition, it seems most economical and effective to meet these national problems through the central organization equipped to handle them, rather than through individual efforts of the 14 divisional associations that support the American Paper and Pulp Association.

"In conclusion, may I say that it is

CONSTANT PROTECTION AGAINST *Corrosion--Contamination*

There is positive protection against loss and destruction through corrosion and contamination in Pulp and Paper Mills. A complete line of standard equipment, including Pumps, Valves, Pipe and Fittings, Heating and Circulating Jets, Ejectors, etc., is available in the following corrosion-resistant alloys. Special castings are made to order from customers' designs and patterns.

- **DURIRON—unaffected by paper makers' alum . . . protection against iron pick-up or contamination of the stuff. Duriron equipment is used for dissolved alum handling systems.**
- **DURICHLOR—completely resistant to chlorine and its compounds in all concentrations used in paper making. Durichlor Pumps, Valves, Pipe and Fittings for make-up and handling hypochlorite bleach are proof against corrosion and contamination of the bleach.**
- **DURIMET—a patented low carbon (0.07% max.) nickel-chromium-molybdenum stainless steel recommended for sulphuric acid and for digestor equipment where weak sulphuric acid forms when the digestor is shut down.**
- **DURCO STAINLESS STEELS—Durco KA2SMo (low carbon 18-8 plus 4% molybdenum) is used extensively for handling hot sulphite liquors . . . the low carbon content and adequate heat treatment are assurance against intergranular attack and subsequent failure. Other stainless steels are available for specific applications.**

If you are having trouble with corrosion at any point in the Mill, let us give you the benefit of our long experience in meeting such problems in every major industry.

THE DURIRON COMPANY, Inc.

North Findlay Street — Dayton, Ohio

Annual luncheon of the American Paper and Pulp Association at the Waldorf-Astoria Hotel.

my hope that the American Paper and Pulp Association may serve as a focal point for consideration on the part of the industry of its inevitable post-war problems.

"It appears vitally necessary that the industry develop a plan or plans to meet changed conditions and that it take an active part in obtaining understanding on the part of Congress of the needs of the situation."

President Riegel then called upon George H. Mead, president of the Mead Corporation, and long a foremost leader in the industry, who spoke as follows:

▶▶▶ "The subject assigned to me by Mr. Riegel, our able President, and Mr. Tinker, our efficient Executive Secretary, namely 'How Can an Association Help You to Carry Out Your Own Company Management Responsibilities,' is quite a challenge.

"Had I been given responsibility for selection of a title for this discussion of Association activities, I would have reversed the words and asked the question—'How Can the Management of Any Company Carry Out Its Responsibilities Without Assisting In the Maintenance and Direction of An Industry Association?'

"All one needs to do is look over the history of business since the beginning of the present century, and note the success that has come to such industries as have operated with well-directed associations, and the failure that has attended those in which associations have failed to function, or have been misguided.

"Certainly, the developments for the past ten years should have eliminated any doubt in the minds of disbelievers, and while there will probably always be some 'isolationists,' it is my humble judgment that they will be much harder to find in a rather short time. Not, perhaps, that they will 'choose' to change their minds, but will be forced to do so by circumstances over which they have no control.

"The pulp and paper industry is perhaps still more individual than most of the major industries. Many of its companies have ownership management. It is composed of a great number of smaller units with comparatively few consolidations of plants with great numbers of stockholders. It is therefore particularly well constituted to supply a group of men who can render real service not only to itself but to the country.

"While it may be idealistic to talk of the influence the use of our products might have on our attitude toward things social and economic, it is nevertheless true that in the production and character of our goods we play a vital part in development of this country.

"We have progressed from a nation of 'rugged individualists' to one of great industrial organization, with people more dependent upon one another in every phase of daily life than ever before. We must now organize the nation as we have the units of production, and if this makes social democracy, we must learn to like it.

"A few years ago a law was placed on the statute books of this country called the N. R. A., which was later declared unconstitutional by the Supreme Court.

"Recent rulings and decisions of the Supreme Court indicate that with some minor changes a new law similar to the National Recovery Act would undoubtedly receive approval as to its constitutionality, and with certain alterations it might be to the best interests of the country, and to industry itself, to have such legislation.

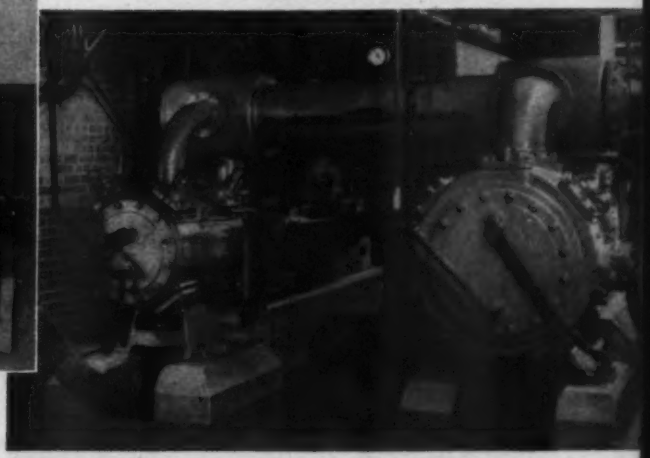
"Decisions in labor problems were settled in a better manner around the N. R. A. table than by the Labor Board that followed.

"The two labor laws that followed the extinguishment of the N. R. A., namely, the Wagner Act and the Wage and Hour Bill, while not objectionable to industry in principle, have not been satisfactory in all respects in administration, and have not permitted, in my opinion, as satisfactory a labor situation as existed during the N. R. A.

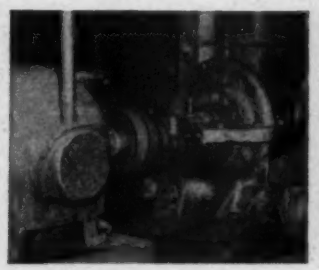
"Each of us can do something to help individually in the present emergency by giving moral as well as financial support to our government; we must have a united nation. There is a powerful statement in the saying, 'How infinitesimal is that which I can

Above—Moore turbo-generator unit, condensing extraction type, serving a Canadian paper mill

Horizontal duplex air compressor, motor-driven, installed in a southern paper mill

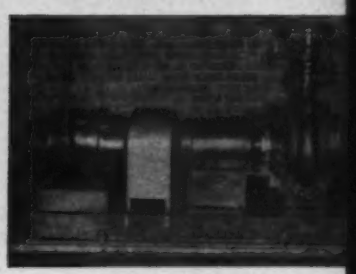


280,000-lb. storage type deaerating feedwater heater, in paper mill service



Motor-driven centrifugal pump, handling white water

Centrifugal pump, transferring black liquor and salt cake to a recovery unit



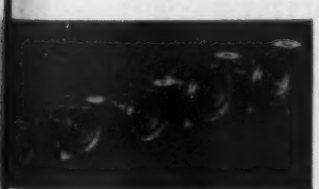
Paper stock pump, in a prominent midwestern mill

Motor-driven turbine well pump, for main mill water supply

WORTHINGTON PUMPS AND POWER UNITS are proved production boosters

THE installation of Worthington equipment is a long step toward insuring an uninterrupted production flow in any pulp or paper mill. A century of experience in building hydraulic, power, and mechanical equipment has produced innumerable developments in design which anticipate and remove the operating difficulties with which many mills are still struggling.

Worthington engineers understand the problems of the industry and are prepared to make intelligent recommendations based on achieved results. A discussion of your plans is sure to bring out some interesting points.



Worthite centrifugal chemical pumps, with cast iron frames, 3/4" to 3" sizes

Centrifugal 6-stage boiler feed pump, turbine-driven

● *Write for literature describing the products in which you are interested.*

WORTHINGTON PUMP AND MACHINERY CORPORATION

General Offices: **HARRISON, NEW JERSEY**

Branch Offices and Representatives in Principal Cities throughout the World

WORTHINGTON

do, but how infinitely important that I should do it.'

"We can do more as employers of men and distributors of goods by using tolerance and moderation in all activities. We can do most, however, as individuals collectively by co-operation with government, not only assisting in, but helping to direct the organization of all business; by developing a new understanding of the functions of government, and working with it through the channels that have been provided for just such purpose.

"This is the great function of an association, and its importance cannot possibly yet be estimated. The money and time spent by you gentlemen at this critical hour in the building of a fine, well-organized and directed Association is the best investment you can make for your stockholders, and yourselves as managers of important properties.

"We are living in an already new world, and it is changing further with every hour that passes. Never have we been more dependent upon one another, nor needed greater unity in all things.

"Through personal knowledge, I can assure you of the desire of those entrusted with government to have your help. It is my sincere hope that this important industry, to which I have given a modest lifetime of effort, and for which I hold great affection, will, through the American Paper and Pulp Association, put forth every possible effort toward the real organization and maintenance of a lasting Democracy."

▶▶▶ The American Paper and Pulp Association held an open forum on labor relations in the Jansen Suite of the Waldorf-Astoria on the afternoon of February 19. James Towsen, of the personnel department of the West Virginia Pulp and Paper Company, New York, acted as chairman.

Speakers at the forum were Ralph A. Haywood, president and general manager of the Kalamazoo Vegetable Parchment Company, Parchment, Kalamazoo, Michigan, and D. C. Everest, president of the Marathon Paper Mills Company, Rothschild, Wisconsin. Mr. Haywood spoke on "Industrial Relations."

"Are we not ready to declare that each company is a co-operative enterprise?" Mr. Hayward asked, and continued: "The stockholders are contributing their resources for buildings, equipment and materials for the manufacturing processes, while the employees convert these materials into something that will be of service to the remainder of society. In view of the fact that there is ignorance regarding the distribution of real profits, will not the time come when collective bargaining negotiations will be carried on between committees representing the stockholders, employees and public?"

Responding to questions from the floor, Mr. Hayward explained the system employed by his company in maintaining close contact with its 1,500 employees and in keeping them posted on company developments and economic conditions which affect both them and the operations of the company. This takes the form of letters, specially prepared by Mr. Hayward, which are informal in tone and designed to increase the knowledge and feeling of security of the workers. "The costs have been small and the benefits great," he declared.

Mr. Everest, while citing growing shortages of skilled and semi-skilled workers in defense industries, said that the Defense Program would have a reservoir of sufficient man power for the next six to nine months. The paper industry, he reported, had lost some skilled maintenance workers to the defense industries, but, for the most part, the skilled paper workers with many years of service and retirements benefits were not looking outside the industry. The situation is different, however, as regards younger semi-skilled men and reserves must be trained to replace them, he said.

Mr. Everest entitled his address "The National Defense Program and Its Possible Effects on the Industrial Labor Forces." In closing his talk he said:

"Each company in the paper industry should analyze its own situation. It should know, first, what its 'key' jobs are; and, second, what kind of men are required to fill those jobs.

"Many companies have: 1) Made an inventory of the skill and experience of each worker, and thus know which employees are ready for promotion should vacancies occur; 2) Determined which men they will probably lose through induction into military service; 3) Made or obtained through the United States Employment Service a survey of the skilled and semi-skilled labor in their localities which can be employed should vacancies appear."

The Board of Governors of the American Paper and Pulp Association held a joint meeting with the Executive Committee of the Association on the morning of February 19 in the Jansen Suite of the Waldorf-Astoria, at which a resolution was adopted expressing the appreciation of the paper and pulp industry for the service rendered by D. C. Everest in his able representation of the industry on the National Defense Commission.

At this joint meeting, Henry P. Carruth, of the Brown Company, rendered the annual report of the Technical Committee. Secretary E. W. Tinker presented the report of the Public Affairs Committee, covering the Association's activities in behalf of the industry at Washington and elsewhere on matters of legislation, regulation and taxation.

E. W. Kieffer, of the Port Huron Sulphite and Paper Company, rendered the report of the Statistical Committee, in which were recommended changes purported to improve service to member mills of the Association.

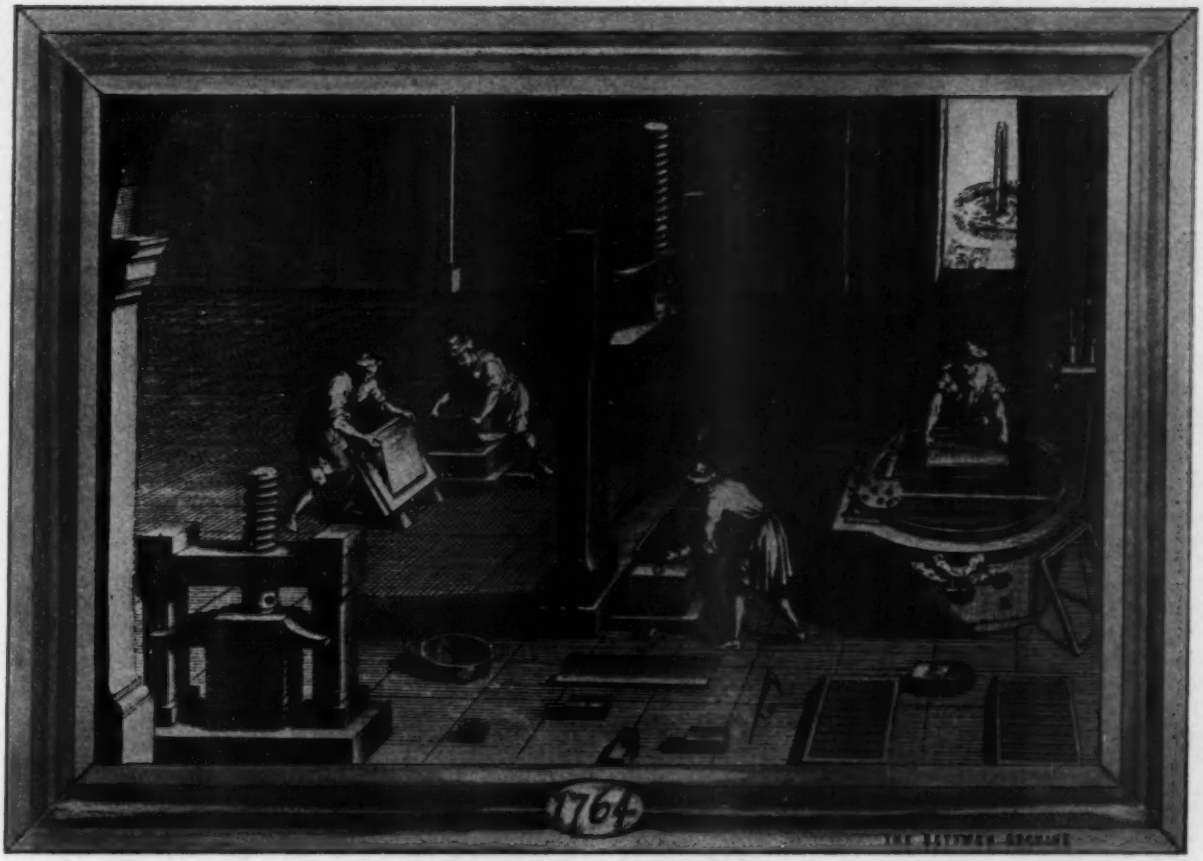
Supply Dealers Dinner

With nearly 300 leading paper mill supplies merchants from New York and surrounding territory present, together with a generous number of purchasing agents and other officials of board, paper and roofing mills as guests, the 33rd annual banquet of the New York Association of Dealers in Paper Mills Supplies, Inc., in the East Ballroom of the Hotel Commodore, New York, on the evening of February 18 proved a most enjoyable and successful event during Paper Convention Week in New York.

A sumptuous seven-course dinner was served, following which an excellent stage show was put on lasting until midnight. There were singers, dancers, funsters and a magician as well as a girl chorus, and each act was loudly applauded, most of them being brought back for encores.

Walter H. Martens, of George W. Millar Co., Inc., the perennial chairman of the Association's Banquet Committee, again had charge of the arrangements for the affair, celebrating the twenty-fifth annual banquet he has conducted for the trade group. Assisting him on the committee were Arthur Rosenfeld, of William Steck & Co., Inc., and president of the Association, and John L. Nielsen, of the E. J. Keller Company, Inc., and first vice president of the Association.

Alfred J. Moran, of A. J. Moran & Co., Inc., Brooklyn, headed the Journal Committee which was responsible for a handsome booklet as a souvenir of the event and containing the dinner menu, stage program and advertisements of a large number of concerns in the industry.



From THIS PAPER MAKING PROCESS GREW THE 1941 MODERN PRODUCTION PAPER MILL

make APPLETON FELTS good paper

It was the art of paper making, in 1764—production limited to the individual effort of the workman. But, even then felt layers were used to remove water from the paper, put between the felt layers and pressed. As hand methods gave way to production machines, so too progress was made in felt making. Appleton Felts have since 1890 kept pace with the paper industry until today Appleton Felts fully meet all requirements of modern paper mill production.

This is one of a series of six advertisements illustrating the early history of paper making.

Appleton Woolen Mills

APPLETON • WISCONSIN

Twenty-sixth Annual
TAPPI Convention

▶▶▶ THE 26TH ANNUAL MEETING of the Technical Association of the Pulp and Paper Industry became history when the annual luncheon, commonly considered the highlight of each yearly gathering, was brought to a close on the afternoon of February 20, 1941. Held at Hotel Roosevelt in New York, as were all of the other sessions of the convention, the luncheon meeting was inspirited by two splendid talks—one by D. C. Everest, president of Marathon Paper Mills Co., and former president of the American Paper and Pulp Association, and the other by Elmer W. Peterson, war correspondent, writer, traveler and lecturer.

National Defense and the Paper Industry

Mr. Everest, as Group Executive, Pulp and Paper Section, National Defense Advisory Commission, spoke on "National Defense and the Paper Industry." An excerpt of his remarks follows:

"As I view this whole situation we are now, and have been since June 1940, engaged in taking an inventory of the United States of America and the world in general. We have not taken a real inventory since 1917, nearly twenty-five years ago. Things have changed materially since that time. Today we are engaged in a production program which overshadows anything we ever dreamed of before.

"Few realize that since June of last year, that the Army, Navy and Treasury Procurement in co-operation with the National Defense Commission have specified and placed orders for plant construction and goods totaling over fifteen thousand million dollars or approximately twenty-five per cent of the total dollars value of the entire sales output of the United States for one year. This is a gigantic task and the personnel involved in doing all this work amounts to a mighty small percentage of the total number engaged in placing a similar amount of business in the ordinary industrial channels.

"Coupled with this job of specification has been the constant problem of new developments in war equipment and material.

"In war there is no sense in producing those things which are obsolete. In war obsolescence is fatal. It may be tolerated for a time in industry, but in war the very life of the defending force depends on having better or at least offsetting equipment.

"This inventory will develop the weaknesses as well as the strengths of this country.

"This inventory will develop an accurate estimate of the man power of the country. It will give us the information we require on which to base our educational and training program for the so-called skilled worker group of the future.

W. H. Swanson was re-elected president of TAPPI at the annual meeting.

"It will awaken people to the study of shipping and transportation of all sorts.

"Everything we do or have to deal with will in some way be affected by the Defense Program.

"How will industry generally be affected by the imposition of the business incident to the Defense Program, on the regular business of the country?

"Four things stand out prominently as the most important factors affecting industry.

"*Labor* ranks first in importance. With the Selective Service Training program in effect, many young able-bodied men will be withdrawn from industry. Increased business activity will require many more men than have been employed for some time. This situation is bound to create shortages in certain locations due to concentration of industrial activity. In my opinion this will be the greatest opportunity labor leaders have ever had to show real leadership. I feel that out of the labor group there will emerge men who will be outstanding and that the trend will be toward a conservative policy which will ingratiate them with the public and with labor. Labor, as well as management, is on trial in an emergency of this sort.

"*Raw materials supply* is another thing which will undoubtedly create many headaches over the next few years.

"Already certain items are being regulated by priority and the number of these will increase. The Defense Program, coupled with the 'all-out' Aid to Britain program, must necessarily take precedence over civilian needs. If you are engaged in plant expansion which is not considered necessary to these programs you will undoubtedly have a difficult time getting materials and equipment. Defense work must come first and that feeling will increase as time goes on.

"*Transportation* is the third most important thing. While the railroads have, through the spending of vast sums of money over the past twelve years, speeded up transportation and we have seen tremendous strides in motor transportation, there may still develop a bottleneck in transportation in certain localities. This feature, I understand, is given serious consideration in the location of new facilities and in the placing of business with presently established facilities, but seasonal movements of products such as grain, pulpwood and the like may feel the impact of the Defense Program and here again priorities may be invoked to meet an acute situation.

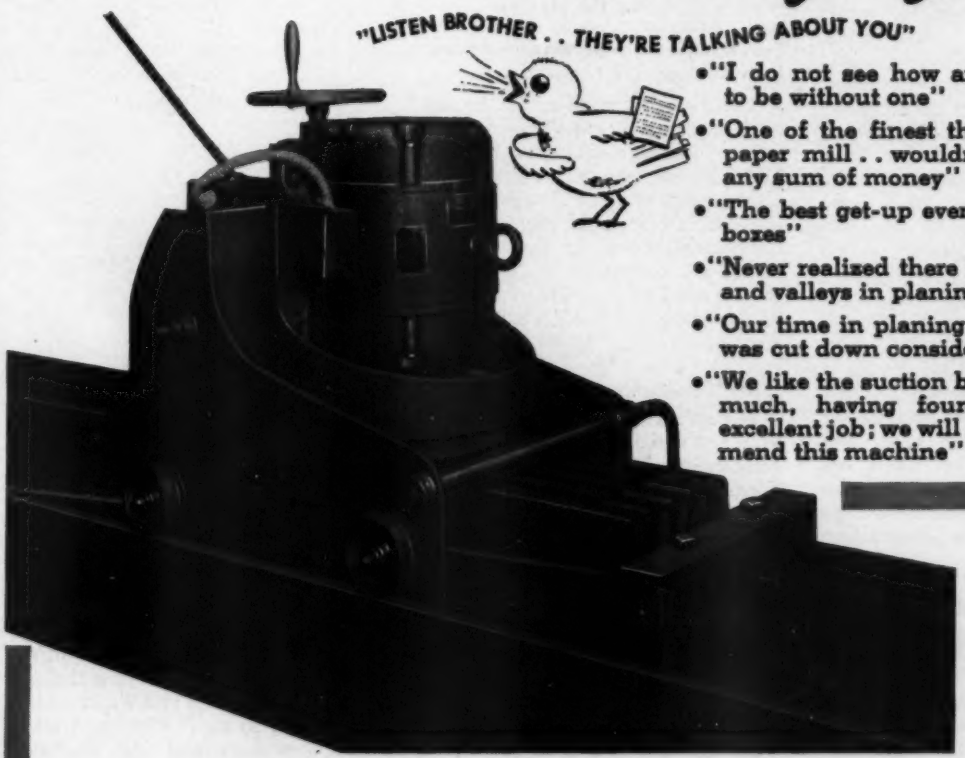
"*Power* is the fourth essential thing. With all this rapid expansion and particularly in the production of metals and chemicals, the demand for electrical energy is enormous. Standby equipment which may not have been used for years may prove a valuable asset to many industrial concerns in the pinch which may develop.

"In all of these fields: namely, Labor, Materials, Transportation and Power, the Office of Productive Management has outstanding men familiar

WHEN **SUPERINTENDENTS**
CAN SAY *THESE* THINGS ABOUT IT..

THE EASTWOOD SUCTION BOX CONDITIONER

will do a job for You!



- "I do not see how any mill can afford to be without one"
- "One of the finest things ever put in a paper mill . . wouldn't get rid of it for any sum of money"
- "The best get-up ever seen for grinding boxes"
- "Never realized there were so many hills and valleys in planing by hand"
- "Our time in planing suction box covers was cut down considerably"
- "We like the suction box conditioner very much, having found that it did an excellent job; we will at any time recommend this machine"

The Eastwood Suction Box Conditioner does a thorough job.

★ **Easily portable, the machine may be placed where most convenient for operation.**

★ **Dresses all cover materials . . supports the suction box in exactly the same manner as placed in paper machine.**

★ **Fast in loading and operation. Reasonable enough in cost for a one-machine mill.**

Full information on request.

EASTWOOD-NEALLEY CORP.

BELLEVILLE • NEW JERSEY

with these several subjects working day and night to anticipate bottlenecks and to provide against them. These men will do a fine job but they will need co-operation of labor and industry and may have to upset some of the normal "business as usual" in the process.

"As to the four items I have cited in relation to the impact of the Defense Program on industry, I believe that labor supply, taking it in the broad sense, will have the greatest effect on the pulp and paper industry. Taking the problem from the production of pulpwood to the salesmen in the field, I fear that all classes will be hit under the enlistment and Selective Service systems. Much depends on the mill location as to the loss of maintenance men and skilled mechanics, but many mills in concentrated industrial areas will feel the loss of this type of workers. In your own field there will be many who will be drawn into the chemical warfare section either on account of their former connection with it or their desire to enlist in the particular section in which they have been trained. Taken all in all, the personnel department will be up against a stiff job to find satisfactory replacements. To be more specific as to the localities in which the labor impact will be felt, it is my guess that Michigan and the North Atlantic seaboard will be hardest hit. The Pacific Coast will feel the effects in the spring through activity in ship yards and airplane factories. The South has probably reached or passed its peak of demand unless ship building steps up demand for skilled mechanics during the summer.

"As to materials, I see but little difficulty except as to pulp. There may be many items of metals and special alloys used as repairs which will give us considerable trouble, but in the regular line of materials entering into the manufacture of paper or board there seems little likelihood of trouble. Transportation and power supply are more or less local problems and our industry will be affected as industry in general is affected.

"Your job is to develop within this country the quality pulps which will tide us over the emergency and can be continued thereafter: I have implicit faith in your ability to do this and thus enable us to get through this tight situation without putting the paper industry in the embarrassing position of failing to meet the country's needs.

"The impact on this industry will be largely what we make it. Co-operative effort is essential in every phase of the program to avoid restrictions and bottlenecks. In this I sincerely urge you to help in every way possible in accordance with the suggestions of those in charge of the Defense Program. It will hasten accomplishment and demonstrate that we can meet an emergency in the true American spirit of doing things."

Observation of a War Correspondent

Mr. Peterson, following Mr. Everest on the program, related extemporaneously and in a most human sort of way some of his experiences as a world traveler and war correspondent. These experiences covered personal observations in the Scandinavian countries, in Poland, in Germany, in Spain, in China, as well as in certain other countries that have been so much in the news during the past few years. It was a talk, straight from the shoulder, that pulled no punches and yet was unusually broad in perspective.

The meetings, previous to the Annual Luncheon, began with a General Session on the morning of February 17. This meeting was followed by eighteen group meetings—three during the afternoon of the first day; three each during the forenoon and afternoon sessions of the following two days and three during the morning of the fourth and last day of the convention.

The Technical Program

More than 90 papers, the work of over 130 authors, were scheduled for presentation before the several sessions.

The program of the general session (W. H. Swanson, Chairman) on the morning of February 17 included the presentation of the Secretary's Report by R. G. Macdonald and the President's Address by W. H. Swanson, a business session, and the presentation of two papers.

Secretary's Report

Mr. Macdonald in his report related that the total individual membership of TAPPI, as of December 31, 1940, was 1794. He also mentioned that, since the annual meeting of last year, the Association lost through death the following members: F. L. Barstow, C. E. Curran, G. M. Fowler, R. O. Harper, W. H. Mason, G. W. Miles, F. W. Motschman, O. O. Roberts, and A. D. Wood.

Special reports issued by the Association in 1940, according to Mr. Macdonald, included the following: Paper Formation on Cylinder Machines; Storage Chests Protective Coating; Drying Rates for Paperboard; Pulp Evaluation; Standard Humidity Conditions for Paper Testing; Coated Paper Splitting and Peeling in Printing; Opinions on 50 vs. 65 Per Cent Relative Humidity for Testing; APPA Relative Humidity Survey; Recovery of Heat in Sulphite Pulp Mills; Starch Application to Paperboard for Glass Ink Printing; Dust Collecting from Converting Machines; Variation in Beating Characteristics of Sulphite Pulps and Corrosion in Sulphate Pulp Mills.

Mr. Macdonald also stated that the 1941 fall meeting will be held at the University of Michigan, Ann Arbor, Michigan, on September 16-19, 1941.

Address of President

In the president's address by Mr. Swanson, it was brought out that the Association continues in its usual sound financial condition that literature abstracts will now be published in a separate publication which will be issued quarterly to members; and that local section activities, it appears, are becoming more and more a major feature in the activities of the national association.

Mr. Swanson likewise complimented and thanked the Pacific Coast section for its efforts in connection with the splendid management of the 1940 fall meeting at Seattle. In addition, he called attention to the 1941 fall meeting to be held at Ann Arbor, Michigan, mentioning that this meeting would be under the sponsorship of the Kalamazoo section.

In closing his address, Mr. Swanson thanked Mr. Macdonald as secretary-treasurer of the Association, and the members of the executive committee for their effective efforts in conducting the affairs of the Association during the past year.

Officers Elected

At the business session, the names of the officers of the Technical Association of the Pulp and Paper Industry, elected by mail balloting of members, were announced. W. H. Swanson, of Kimberly-Clark Corp., and Ralph A. Hayward, of Kalamazoo Vegetable Parchment Co., were re-elected president and vice president respectively. Likewise, the following executive committeemen were elected to serve for a term of three years:

Pierre Drewsen, Hinde & Dauch Paper Co.; H. H. Hanson, W. C. Hamilton & Sons; B. D. Millidge, Howard Smith Paper Mills, Ltd.; and G. W. E. Nicholson, Southern Kraft Corp.

The two papers with respective authors, scheduled for presentation before the general session of February 17 were: "Relation Between Chain Length Distribution Curve and Tenacity," by H. Mark, Polytechnic Institute

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of Brooklyn; and "Status of the Lignin Problem," by Harold Hibbert, McGill University.

First of Group Meetings

The group meetings scheduled for the afternoon of February 17 included a Water Session, with Lewis B. Miller as Chairman; a Materials of Construction Session, with J. A. Lee as Chairman; and a Fundamental Research Session, with H. F. Lewis as Chairman.

Water Session

Six papers were on the program of the Water Session. The subjects of these papers and their respective authors were as follows:

"Sveen Glue and Its Effect on Paper Mill," by P. M. Loddengaard, Bulkley, Dunton Co., and R. Tutt, Jr., Peter Cooper Glue Co.

"Conditioning Water with the Spaulding Precipitator," by Eskel Nordell, The Permutit Co.

"Water Treatment at Escanaba Paper Mill," by I. W. Johnston, The Dorr Co.

"Water Treatment at National Container Mill," by Rudolph C. Richter, National Container Co., and F. J. Lammers, International Filter Co.

"Floc-Forming Chemicals," by Lewis B. Miller, Keasbey & Mattison Co.

"Feed Water Control in Minnesota and Ontario Paper Mill," by H. E. Einert.

Materials of Construction Session

Four papers, one of them by title, and two round table discussions made up the program of the Materials of Construction Session

"Monel Jordan Bars," by T. E. Lagerstrom, F. P. Huston, and W. F. Burchfield, each of the International Nickel Co.

"Requirements for Antifriction Bearings on Paper Machines," by B. R. Sackett and C. N. Benson, both of S K F Industries, Inc.

"Factors in Fourdrinier Wire Corrosion," by Harry G. Specht, Eastwood-Nealley Corp.

"Use of Rubberized Equipment for Resistance to Corrosion," by John F. Amlicke, Manhattan Rubber Co. (by title).

One of the round table discussions was on "Mill Piping"; the other, on "Packing Materials." The scheduled leader for the Mill Piping Round Table was S. B. Jones, West Virginia Pulp and Paper Co.; the scheduled leader for the Discussion on Packing Materials, J. W. Hemphill, Johns-Manville.

Fundamental Research Session

The program of the Fundamental Research Session included four papers, namely:

"Determination of Cellulose in Wood by the Use of Ethanolamine," by Philip Bloom and Edwin C. Jahn, New York State College of Forestry.

"Relation of the Chemical Composition of Filler Pulps and the Color of White Urea Formaldehyde Plastics," by George W. Ingle and Harry F. Lewis, Institute of Paper Chemistry.

"The Colloidal Differentiation of Starches," by Harold H. Houtz, Crown Zellerbach Corp.

"The Colloidal Behavior of Soap-Starch Systems with Special Reference to Viscosity Effects and Starch Differentiation," by Alfred M. Heald.

Program of the Second Day

The three morning sessions of February 18th included a group meeting on Preparation of Nonfibrous Materials, one on Acid Pulping and one on Alkaline Pulping. The respective chairmen of the sessions in the order

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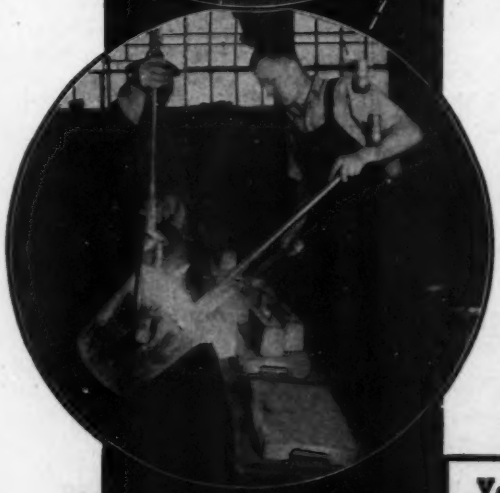

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given were C. M. Connor, H. A. Du Bois and Paul Hodges.

There were four papers on the program of the Preparation of Nonfibrous Raw Materials Session; four on the program of the Acid Pulping Session; and six on the program of the Alkaline Pulping Session.

The subjects of these papers and their respective authors, arranged as to sessions, were as follows:

Preparation of Nonfibrous Materials

"Prosize and Certain Aspects of Rosin Sizing," by H. J. Hotz and T. T. Collins, Jr., each of the Central Paper Co., and H. L. Davis of Johnson and Johnson.

"The Trend in Resins," by J. F. Maguire and J. G. Rote, Jr., both of Reichhold Chemical Co.

"Use of Urea Formaldehyde Resins for Wet Strength Paper Production," by Philip B. Taft, Resinous Products and Chemicals Co.

"Stabelite, a Hydrogenized Resin for Sizing," by A. C. Dreshfield and J. H. Long, both of Hercules Powder Co.

Acid Pulping

"Continuous Cutting Chippers," by N. P. Wardwell, Carthage Machine Co.

"Comparison of Sodium and Calcium Base Sulphite Acids," by M. O. Schur and R. E. Baker, both of the Brown Co.

"Effects of Heartwood Decay in Western Hemlock on Sulphite Pulps," by W. F. Holzer, Crown Zellerbach Corp.

"Sulphite Pulp from Douglas Fir," by G. H. Chidester and J. N. McGovern, both of the U. S. Forest Products Laboratory.

Alkaline Pulping

"Kraft Pulping with Low Sulphidity," by S. D. Wells and K. A. Arnold, both of the Institute of Paper Chemistry.

"The Use of Gypsum in the Kraft Process," by Otto Kress and Wm. H. Aiken, both of the Institute of Paper Chemistry.

"Precipitation of Solids in Kraft Stack Gases," by L. M. Roberts, Research Corp.

"Operating Data on the Combustion Engineering Sulphate Recovery System," by F. H. Rosencrantz, Combustion Engineering Co.

"Performance of Evaporators," by J. P. Rubush and G. E. Seavoy, both of Swenson Evaporator Co.

"Heat Transfer Coefficients in Natural Circulation Evaporators," by L. C. Jenness and J. G. L. Caulfield, both of the University of Maine.

▶▶▶ The program of group meetings for the afternoon of February 18 included a session on Alkaline Pulping with S. D. Wells as chairman; a session on Stuff Preparation with W. D. Harrison as chairman; and a session on Industrial Engineering and Fibrous Raw Materials with L. T. Stevenson and John Traquair as chairmen. Fifteen papers were scheduled for presentation during the afternoon, five each for each one of the group meetings.

Arranged as to sessions, the subjects of these papers with their respective authors were as follows:

Alkaline Pulping (Afternoon Session)

"Suitability of High-Density, High-Summerwood Slash Pine for Kraft and High-Grade Papers," by Sidney L. Schwartz and Mark W. Bray, both of the U. S. Forest Products Laboratory.

"Pulping Sweet-Gum by the Alkaline Processes: I. Effect of Cooking Variables on Yield and Quality," by Mark W. Bray and J. Stanley Martin, both of the U. S. Forest Products Laboratory.

"Effect of Washing on the Strength of Bleached Sulphate Pulps," by E. H. Smith, A. B. Moore, Jr., and K. G. Chesley, each of Crossett Paper Mills.

"Chemical and Physical Characteristics of Soda Pulp," by John Frankevicz and N. I. Bearse, both of the Champion-International Co.

"Some Fundamental Factors in Deinking Waste Papers," by A. O. Bragg, Diamond Alkali Co.

Stuff Preparation

"Disk Refiner in Paperboard Manufacture," by W. H. Hall, Bauer Bros. Co.

"Process Factors in Beating of Wood Pulps," by Howard R. Gaetz, Midvale Paper Board Co.

"Importance of Roll Pressures in Beating Pulp Stocks," by C. D. DeMers. Taylor Instrument Cos., and H. D. Johnston, Strathmore Paper Co.

"Asplund Defibrating Process," by Uno Lowgren, Defibrator Co.

"The Chemipulper," by Arno W. Nickerson, Consulting Engineer Industrial Engineering and Fibrous Raw Materials.

"Storage of Crop Fibers and Preservation of Their Products," by Harold R. Hay and Elbert C. Lathrop, both of the U. S. Northern Regional Research Laboratory.

"Job Evaluation," by R. H. Rositzke, R. H. Rositzke & Associates.

"Volume, Sales and Costs Relationships," by Benton R. Cancell, American Paper and Pulp Association.

"New Index of Industrial Production," by Louis T. Stevenson.

"Patents and Preparedness," by Charles W. Rivise, Caesar and Rivise.

Group Meetings of Third Day

The third day of the convention, February 19th, was given over to the following group meetings: Graphic Arts, Pulp Purification, Stuff Preparation, Forming and Finishing, Coating, and Containers and Testing. The first three of these sessions were held during the morning; the remaining three during the afternoon.

M. S. Kantrowitz was scheduled as chairman of the Graphic Arts Session; J. D. Rue, of the Pulp Purification Session; G. Lamont Bidwell, Jr., of the Stuff Preparation Session; A. E. Bachmann, of the Forming and Finishing Session; and J. D. Malcolmson and J. d'A. Clark as chairmen of the Containers and Testing Session.

The program of these several group meetings called for the presentation of 34 papers, six of them by title. One of these meetings, the pulp purification meeting, was given over to a symposium on the chlorination of wood pulps.

A list of the papers with names of respective authors, arranged according to sessions, follows:

Graphic Arts

"Control of Paper Expansion in Multicolor Lithography," by Charles G. Weber, National Bureau of Standards.

"Inks and Their Relation to Paper," by George Cramer, Sinclair & Valentine Co.

"Hydry Printing Inks," by D. Robert Erickson and Fred D. Elliott, Michigan Research Laboratories.

"U. S. Coast and Geodetic Survey Chart Making," by D. P. Barnette, U. S. Coast and Geodetic Survey.

"Moisture Content and Regain of Coated Papers," by J. D. Davis, Dill & Collins, Inc.

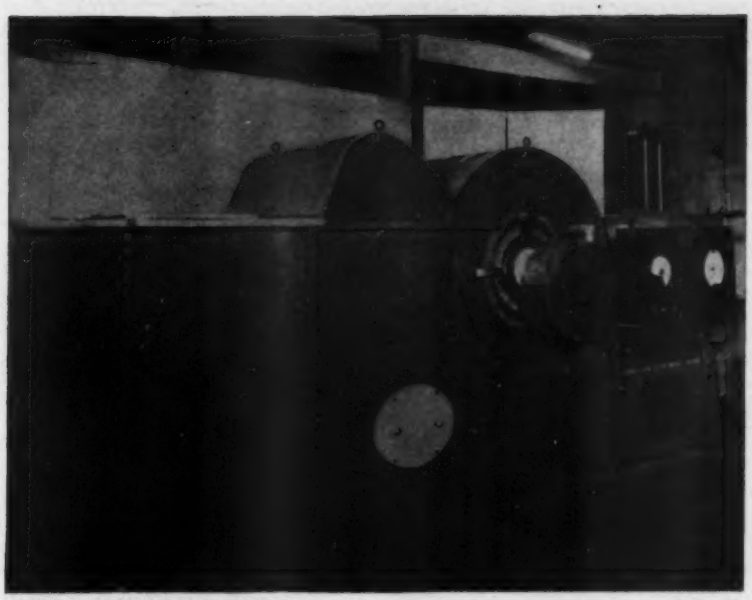
"Tack Measurements for Printing Papers," by A. E. Gessler (by title).

"Specific Surface Measurement of Fine Particles," by A. E. Gessler (by title).

Pulp Purification (Symposium on Chlorination of Wood Pulps)

"Some Aspects of the Chlorination of Sulphite Pulp," by N. W. Coster and R. I. Thieme, both of the Soundview Pulp Co.

"Mechanism of the Chlorination of Lignin," by Joseph L. McCarthy and Harold Hibbert, both of McGill University.



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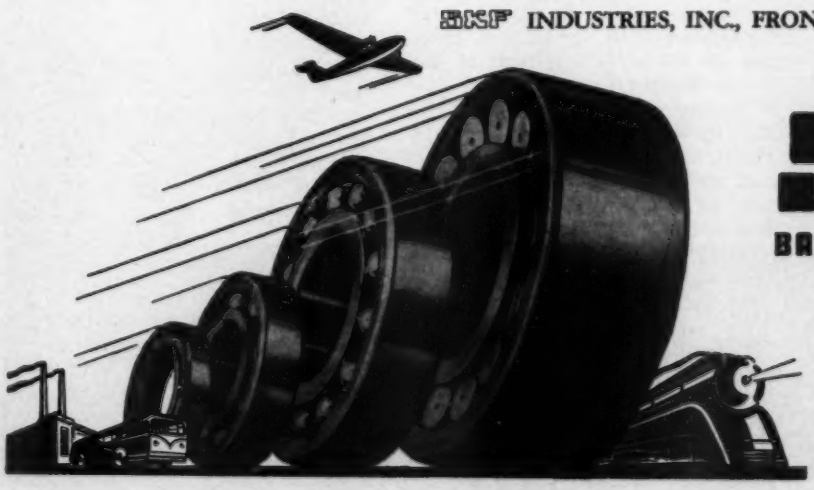

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"Effect of Tannins on Alkaline Pulping," by John W. Bard, Marathon Paper Mills Co.

"Nature of Lignin Residues in Unbleached and Partially Bleached Sulphite Pulp," by Leslie L. Larson, Kimberly-Clark Corp.

"Solubility of Chlorine in Water," by Roy P. Whitney and J. Edward Vivian, both of the Massachusetts Institute of Technology (by title).

Pulp Purification (Not in Symposium)

"A Critical Review of the Literature of Pulp Bleaching," by J. S. Tongren and J. L. Parsons (by title).

"A Critical Review of the Literature of Pulp Purification for Dissolving Purposes," by Fred Olsen (by title).

"Translation of F. Loeschbrandt's 'The Bleaching of Sulphate Pulp'," by E. Martin (by title).

Stuff Preparation

"Production of Pulp from the Fibrous Elements of Sugar Cane Bagasse," by S. D. Wells and J. E. Atchison.

"Pulping of Wheat Straw in the Rod Mill," by Sidney D. Wells and Pasquale A. Forni, both of the Institute of Paper Chemistry.

"Measuring and Recording Freeness Continuously," by Arthur B. Green, Consulting Engineer.

"Theory and Practice of the Dilts-Cowles Hydrapulper," by E. M. Root and R. F. Vokes, both of Dilts Machine Works.

Forming and Finishing

"Copes Consistency Control," by Don Allshouse, Northern Equipment Co.

"Effect of Calendering Pressure on Sheet Properties," by G. E. Makin, E. L. Kelly, and P. K. Baird, all of the U. S. Forest Products Laboratory.

"Performance of the Streamflow Vat System on Ninepoint," by J. R. Buchanan, The Harriman Co.

"The Mechanism of Softening Paper," by C. M. Connor and A. H. Nadelmann, both of the Glassine Paper Co.

"Continuously Coloring of Paper and Paperboard," by Frederic A. Soderberg, General Dyestuff Corp.

Coating

"Performance of Machine Coated Papers and the Scope of Their Application," by G. K. Dickerman.

"Measuring the Internal Bonding Strength of Paper," by E. Sutermeister and H. W. Osgood, Jr., both of S. D. Warren Co.

"Opacity Variability as a Measure of Coated Raw Stock Performance," by F. H. Frost and Charles Russell.

"Requirements of Base Papers for Varnish Coatings," by Victor A. Ryan, Crown Cork and Seal Co.

"Comparison of Water-Ground Natural and Precipitated Calcium Carbonates for Paper Coatings," by A. R. Lukens, Thompson, Weiman Co.; C. G. Landes, and T. G. Rochow, both of American Cyanamid Co.

Containers and Testing

"Some Factors Affecting the Compressive Strength of Fiber Boxes," by T. A. Carlson, U. S. Forest Products Laboratory.

"Status of Stiffness Testing in the Container Industry," by Pierre Drewsen, Hinde & Dauch Paper Co.

"Some Applications of Statistical Methods to the Interpretation of Routine Tests," by T. A. Pascoe and Marian Fraser, both of Nekoosa-Edwards Paper Co.

"Factors in the Quality Control of Thermoplastic Coated and Waxed Papers," by T. W. Noble, Detroit Wax Paper Co.

"A T. & T. Business Papers Purchase Standards," by W. H. Joy, American Telephone and Telegraph Co.

Technical Program of Fourth Day

The three group meetings scheduled for the morning of the fourth and last day of the convention were as follows: Heat and Power (Roderick O'Donoghue, Chairman); Bacterial Control Methods (Allen Abrams, Chairman); and Mechanical Pulping (Lyman Beeman, Chairman).

On the program of these three group meetings were the following papers with their respective authors:

Heat and Power

"A High Pressure Heater Application," by E. F. Burns, International Paper Co.

"Blowdown Heat Recovery Systems for Sulphate Mills," by G. A. K. Hunt and H. G. L. Miller, both of the Foster Wheeler Corp.

"Interpretation of Flue Gas Analysis," by Philip W. Swain, Editor of Power, McGraw-Hill Co.

"Controlled Conditioning of Paper," by A. E. Montgomery, J. O. Ross Engineering Corp.

"Lubricating Papermaking Machinery," by T. E. Dial, Socony-Vacuum Oil Co.

Bacterial Control Methods

"Microbiological Problems Related to Water," by Attmore E. Griffin, Wallace & Tiernan Co.

"Economic Losses due to Microorganisms in Pulp Systems," by J. R. Sanborn and Raphael A. Gillotte, both of the New York State Agricultural Experimental Station (Geneva, N. Y.).

"Significance and Accuracy of Bacterial Counts from Paper and Paperboard," by Robert S. Breed, and J. R. Sanborn, both of the New York State Agricultural Experimental Station (Geneva, N. Y.).

"Bacteriological Technique for Studying the Decomposition of Felts," by John W. Appling, Olga A. Smith, and Douglas Fronmuller, all of the Institute of Paper Chemistry.

Mechanical Pulping

"Refining of Groundwood Tailings," by C. P. Reaper, Canadian Ingersoll-Rand Co.

"Roberts Grinder," by A. E. Bartlett, Algonquin Paper Co.

"Drainage Resistance of Groundwood Pulps," by W. O. Hisey and Konstantene Matchuk, both of the New York State College of Forestry.

A round-table discussion of groundwood problems completed the program of the mechanical pulping session.

College Alumni Meetings

Among the extra-convention activities were three college alumni meetings.

Alumni of the Massachusetts Institute of Technology met for luncheon and a get-together for the first time at an annual TAPPI convention. The meeting was held on February 18th, about 35 persons being present. At this meeting, Allen Abrams of the Marathon Paper Mills Co. and a former president of TAPPI was elected chairman of the group for the coming year.

The two other college alumni groups which met during the convention were: University of Maine and the New York State College of Forestry. Both of these groups, for a number of years, have made a regular affair of getting-together for a luncheon or dinner meeting during the Annual Convention. These meetings really have become a popular digression from convention activities on the part of the alumni of both groups. Most certainly, they are enjoyed by all who are privileged to attend.

A Record Tappi Registration

At the Annual Luncheon, the grand finale of the four-day session, W. H. Swanson, president of TAPPI stated that 850 people had registered at the convention—a splendid record of attendance at a most inspiring and helpful conclave.

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Past Presidents Honored at

Salesmen's Association

▶▶▶ THE SALESMEN'S ASSOCIATION of the Paper Industry altered its customary program at this year's convention of the paper industry in New York during the week of February 17. Instead of having its annual meeting on Tuesday morning just prior to the annual luncheon of the Salesmen's Association, which always is one of the social highlights of Paper Week in New York, the business meeting and election of officers was held late Monday afternoon in the Carpenter White Suite of the Waldorf-Astoria Hotel.

John D. Johnston, of the Gaylord Container Corporation, was elected president of the Salesmen's Association, succeeding John R. Diggs, of the Mosinee Paper Mills. Courtney H. Reeves, of the Allied Paper Mills, was re-elected western vice president, and Norman T. Beardsley, of the Union Bag and Paper Corporation, was elected eastern vice president. Burt B. Fisher, Bergstrom Paper Company, was again chosen assistant western vice president; and Stanley O. Styles, Martin Cantine Company, was named assistant eastern vice president. Dr. E. O. Merchant was re-elected secretary and treasurer.

Carrying out the suggestion made by George K. Gibson, first president of the Association and often referred to as the "Daddy of the Salesmen's Association," at last year's annual meeting, fourteen past presidents of the Association were honored and presented with medallions bearing the initials of the Association. The recipients and the terms of their office follow:

George K. Gibson	1920-1921
Howard H. Reynolds	1921-1923
Joseph L. Fearing	1923-1925
Walter E. Perry	1925-1927
James H. Coy	1927-1929
Samuel C. Knode	1929-1931
Harold R. Knott	1931-1934
William L. Raymond	1934-1935
Creighton W. Whiting	1935-1936
Reginald C. Johnson	1936-1937
Edson R. Lyman	1937-1938
John T. Burruss	1938-1939
Hugh N. Phillips	1939-1940

Eight of these former presidents were present to receive their tokens of esteem.

Medallions were also presented to Warren B. Bullock, the first secretary of the Association; Dr. Merchant, the present secretary, and John R. Diggs, the retiring president. For outstanding service to the Association during the past year, engraved certificates and travelling bags were presented to Edson R. Lyman, of the Missisquoi Corporation, and Ben K. Babbitt, of the Brown Company.

The Grand Ballroom of the Waldorf-Astoria was completely filled for the annual Salesmen's Association luncheon on the following day, February 18. Close to 1,400 were in the vast assemblage, the affair, as usual, being the largest attended of any event during the paper and pulp convention.

Thomas Dunlop Galbraith, M.P. and a commander in the British Navy, was the guest speaker at the luncheon of the Salesmen's Association.

President Diggs presided, and among others at the speakers' table and introduced by Mr. Diggs were: George K. Gibson, James H. Coy and Walter E. Perry, past presidents; E. W. Tinker, executive secretary of the American Paper and Pulp Association; A. B. C. Drew, president of the American Pulp and Paper Mill Superintendents Association; A. E. Cadman, secretary of the Canadian Pulp and Paper Association, and Dr. Merchant, secretary of the Salesmen's Association.

President John L. Riegel of the American Paper and Pulp Association, spoke briefly, as follows:

"It is not often that I have the privilege of addressing the Salesmen of the Paper Industry and I am particularly glad to have the opportunity of doing so at the present time.

"The dangerous present situation will require the country to produce on an enormously large scale. Even last year volume in the paper industry was substantially higher than ever before and in 1941 it undoubtedly will be still higher.

"According to the most careful analysis of the American Paper and Pulp Association the paper industry has the capacity to meet all war and consumer needs.

"At any time, however, the users of paper could temporarily choke the mills with orders. This would be followed by a slack period and we would have the type of serious economic disturbance so harmful to the industry and so contrary to the best interests of the whole country.

"The danger is psychological and management is dependent on your knowledge of customer psychology to prevent its occurrence.

"Make sure that your customers maintain adequate inventories, see that they buy regularly and not speculatively in excess of their consumption.

"You and your customers will do a large volume of business this year. All will gain if it is done on a sane and steady basis."

The guest speaker was Thomas Dunlop Galbraith, Member of Parliament, and a commander in the British Navy, who appeared in place of Sir Willmott Lewis, scheduled as the principal speaker but who was confined by illness at his home in Washington. Commander Galbraith discussed the war and peace aims of Great Britain, and his speech was warmly received by his listeners.

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▶▶▶ THE AMERICAN PAPER AND PULP ASSOCIATION has published the information that was obtained from many of the paper and pulp industries regarding military absences caused by conscription. This publication gives actual data concerning the reports of various companies, dealing mainly with the status of the employee after he returns from a year of military service.

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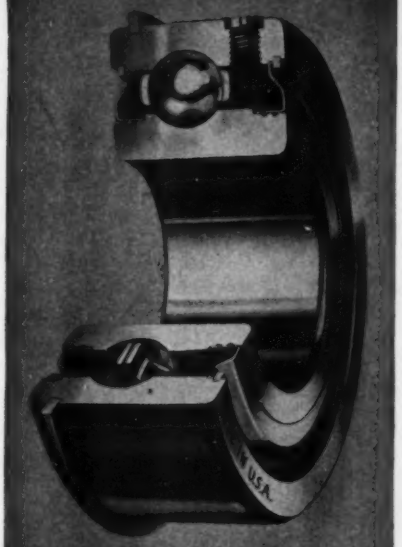

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Divisional Groups

Draw Large Attendance

Writing Paper Manufacturers Association

Observing the 80th anniversary of its founding, the Writing Paper Manufacturers Association — the oldest trade association in the United States —held a largely attended and interesting annual meeting on Tuesday, February 18, in connection with the 64th annual convention of the American Paper and Pulp Association. The business sessions, forenoon and afternoon, were in the Jansen Suite of the Waldorf. In the evening an anniversary dinner was given on the Viennese Roof of the St. Regis Hotel.

A. C. Gilbert, president of the Gilbert Paper Company, Menasha, Wis., was re-elected president of the association for a third yearly term. H. H. Hanson, of W. C. Hamilton & Sons, and J. D. Zink, of the Strathmore Paper Company, were re-elected vice presidents, and Morris C. Dobrow was again named executive secretary-treasurer.

These officers and the following comprise the Executive Committee for the coming year: H. R. Baldwin, Hammermill Paper Company; M. D. Bardeen, Lee Paper Company; G. H. Beckett, Beckett Paper Company; D. D. Coffin, C. H. Dexter & Sons; Bruce Crane, Crane & Co., Inc.; W. J. Garrity, Munising Paper Company; T. A. Hendry, Mead Corporation; R. S. Madden, American Writing Paper Corporation; R. F. McElwain, Crocker-McElwain Company; E. A. Oberweiser, Fox River Paper Corporation; A. C. Remley, Nekoosa-Edwards Paper Company; F. H. Savage, International Paper Company, and W. B. Zimmerman, Maxwell Paper Company.

In February, 1861, eighty years ago, the original constitution of the Association was drawn up and signed. Of the original 21 companies who founded the Association, three—the Carew Manufacturing Company, Parsons Paper Company and Southworth Paper Company—are still members. In the year prior to the founding of the group or 1860, the daily output of writing paper was 76,950 pounds. During 1940, the daily production was 4,000,000 pounds.

Speakers at the 80th annual meeting were H. T. Martin, labor commissioner for paper mills in the Connecticut Valley, and Dr. C. F. Roos, president of the Economic Institute, New York. The keynote of the meeting covered in the addresses of both speakers was the "Transition from Peace to Wartime Economy." President Gilbert presided at the meeting.

The 80th anniversary dinner at night was a gala and interesting event, one of the highlights of the social program of Paper Convention Week in New York. More than one hundred leaders of the paper industry were present even though the attendance was limited to members and a few invited guests distinguished by long service in the paper field, among whom were H. A. Moses, president of the Strathmore Paper Company, who is in his 79th year and has spent 58 years in the paper industry, and R. F. McElwain, vice president and general manager of the Crocker-McElwain Company, who this year will celebrate his sixtieth year in the paper industry. Another dean of the industry present was Alfred Leeds, formerly general manager of the American Writing Paper Corporation.

The principal speaker at the dinner was General Hugh S. Johnson, noted columnist, who also treated with the "Transition from Peace to Wartime Economy" in his address. J. L. Riegel, president of the American Paper and Pulp Association, was among the invited guests and was at the speakers' table. President Gilbert presided at the dinner and in his remarks touched on many outstanding events in the long history of the Writing Association.

United States Pulp Producers Association

At the annual meeting of the United States Pulp Producers Association on February 16 in the Waldorf-Astoria Hotel the following regional directors were elected for 1941: New England—Amor Hollingsworth, Penobscot Chemical Fibre Company; Middle Atlantic—Norman W. Wilson, Hammermill Paper Company; South—Clyde B. Morgan, Rayonier, Inc.; Lake States—Folke Becker, Rhinelander Paper Company, and West Coast—Robert B. Wolf, Pulp Division, Weyerhaeuser Timber Company. Directors at large chosen were Ossian Anderson, Puget Sound Pulp and Timber Company; Downing P. Brown, Brown Company; J. M. Conway, Hoberg Paper Mills; Stuart B. Copeland, The Northwest Paper Company; Walter A. Starr, Soundview Pulp Company, and Alexander Calder, Union Bag & Paper Corporation. Oliver M. Porter, New York, was re-elected executive director of the Association.

Newsprint Manufacturers Association

At the annual meeting of the Association of Newsprint Manufacturers of the United States in Le Perroquet Y Suite of the Waldorf-Astoria on February 19 the name of the Association was changed to the Newsprint Manufacturers Association of the United States. Revised articles of organization were adopted at the meeting.

Arthur L. Hobson, of the St. Croix Paper Company, was re-elected president, and J. D. Zellerbach, of the Crown-Zellerbach Corporation, was elected vice president. Executive Committee members elected were George D. Bearce, Maine Seaboard Paper Company; Gordon H. P. Gould, Gould Paper Company; Samuel Pruyn, Finch, Pruyn & Co., Inc.; R. H. M. Robinson, Minnesota & Ontario Paper Company, and John H. Smith, Hawley Pulp and Paper Company.

Following the general meeting, the Executive Committee appointed Royal S. Kellogg treasurer and Louis W. Adams secretary. Previously both positions were held by Mr. Kellogg.

Kraft Paper Association

The Kraft Paper Association held its annual meeting in Le Perroquet X Suite of the Waldorf-Astoria Hotel on the afternoon of February 17, and elected Edward R. Gay, of the St. Regis Paper Company, president for the ensuing year to succeed N. S. Stone, of the Mosinee Paper Mills Company. George B. Gibson, of the Union Bag and Paper Corporation, was elected vice president and Charles W. Boyce was re-named secretary and treasurer.

Members of the Executive Commit-

tee elected were: J. E. Alexander, Nekoosa-Edwards Paper Company; E. A. Charlton, Crossett Paper Mills; J. H. Cowhill, Tomahawk Paper Company; Gilford Henderson, Brown Company; W. J. Henry, Southern Advance Bag and Paper Company; R. A. McDonald, Crown-Zellerbach Corporation; C. R. McMillen, Chesapeake-Camp Corporation; J. R. Miller, West Virginia Pulp and Paper Company; J. L. Stille, Southern Kraft Corporation, and N. S. Stone, Mosinee Paper Mills Company.

Groundwood Paper Manufacturers

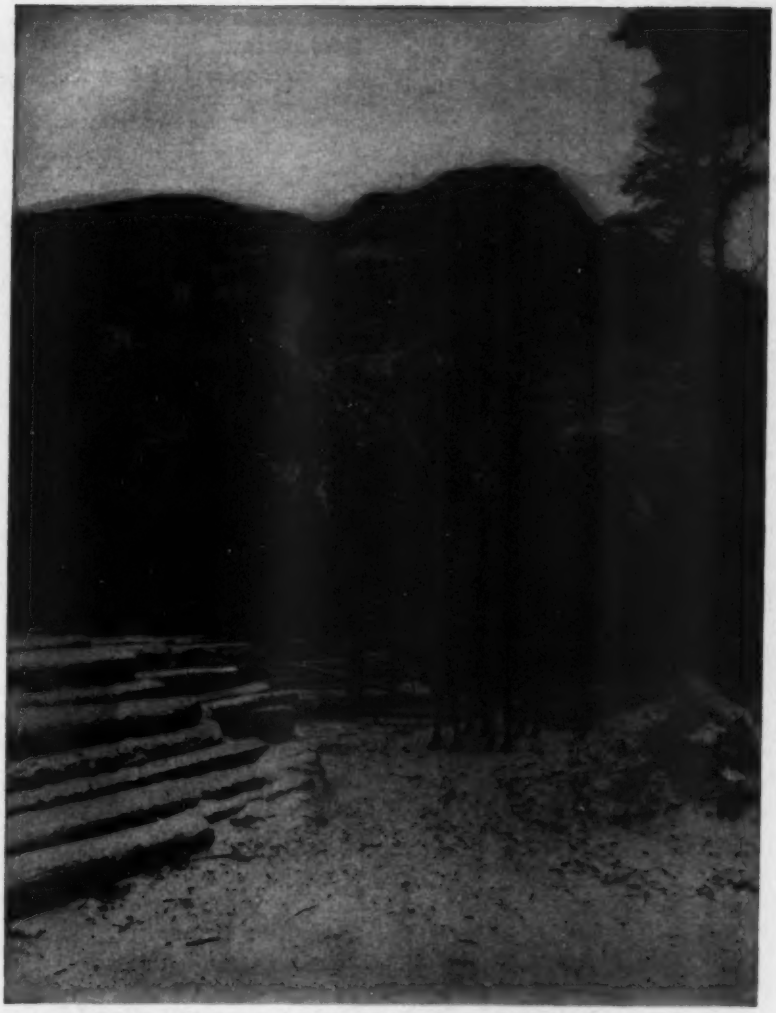
E. G. Murray, of the St. Regis Paper Company, was re-elected president of the Groundwood Paper Manufacturers Association at the yearly meeting in the Carpenter Salon of the Waldorf-Astoria on February 17. W. C. Shorter, of the International Paper Company, and C. K. Andrews, of the Blandin Paper Company, were elected vice presidents, and R. E. Canfield executive vice president. Dr. E. O. Merchant continues as secretary and treasurer. Messrs. Murray, Shorter and Andrews together with Aubree Crabtree, Fraser Industries, Inc., and W. A. Munro, Flambeau Paper Company, compose the Board of Governors for 1941.

There were no speakers at the meeting. The morning session heard reports from the standing committees, while the afternoon session was devoted to an open discussion of market and business conditions.

Sulphite Paper Manufacturers

At the annual meeting of the Sulphite Paper Manufacturers Association in the Jansen Suite of the Waldorf-Astoria on the afternoon of February 17, John Stevens, Jr., vice president of the Marathon Paper Mills Company, Rothschild, Wisconsin, was elected general chairman of the Association, succeeding Leroy F. Porter, of The Northwest Paper Company. The following additional officers were re-elected: Vice Chairman Unbleached Group, George Stuhr, Southern Kraft Corporation; Vice Chairman Bleached Group, Fred W. Cole, Fraser Industries, Inc.; Vice Chairman Manila Group, Rufus L. Sisson, Jr., Racquette River Paper Company, and Vice Chairman Machine Glazed Group, Edgar W. Kiefer, Port Huron Sulphite & Paper Company.

The foregoing officers together with John E. Alexander, Nekoosa-Edwards Paper Company; Walter B. Merlin, Hollingsworth & Whitney Company; W. E. McIntyre, Dexter Sulphite Pulp



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O. J. LELOFF, Vancouver, Wash.
RALPH E. BRIGGS, Canton, Mass.

and Paper Company; Harold O. Nichols, Crown-Zellerbach Corporation; Leroy F. Porter, The Northwest Paper Company, and Rufus I. Worrell, Mead Corporation, were chosen to comprise the Board of Governors for 1941.

James Donaldson, of the Stora Kopparberg Corporation, New York, addressed the meeting on the foreign wood pulp situation, more specifically on what probably will occur after the ending of the war.

Following the general meeting, the several groups of the Association held individual meetings on the next two days.

American Waxed Paper Association

Six Governors were elected at the annual meeting of the American Waxed Paper Association in the Waldorf-Astoria on February 18, as follows: Donald A. Snyder, one year term, and H. O. Nichols, D. C. Hurlburt, Van H. Wilshire, J. E. Edelstein, and Karl Zimmer, two year terms. George J. Lincoln, Jr., was re-elected executive secretary.

Cardboard Manufacturers Association

Malcolm B. Lowe, of the Lowe Paper Company, Ridgefield, New Jersey, was re-elected for his second annual term as president of the Cardboard Manufacturers Association at the yearly meeting of that organization in the Crane U Suite of the Waldorf-Astoria Hotel on February 18. Fred C. Heinritz, of the Appleton Coated Paper Company, Appleton, Wis., was again chosen vice president, and the following group chairmen were elected: Clay Coated Blanks and Miscellaneous Cardboards, Joseph A. Moses, Falulah Paper Company, Fitchburg, Massachusetts; Photographic Mount Group, M. A. Park, Marvellum Company, Holyoke, Massachusetts, and Clay Coated Tag Group, F. C. Heinritz, Appleton Coated Paper Company, Appleton, Wisconsin. James L. Ritchie was reappointed secretary and treasurer.

Blotting Paper Manufacturers

The Blotting Paper Manufacturers Association held an interesting annual meeting on February 17 in the Waldorf-Astoria Hotel and re-elected as president for the ensuing year Henry S. Mead, of the Wrenn Paper Company, Middletown, Ohio, and also re-elected as vice president Ulysses S. Bratton, Jr., of the Rochester Paper Company, Rochester, Michigan. James L. Ritchie was continued as secretary and treasurer.

Association of Pulp Consumers

A meeting was held at the Waldorf-Astoria Hotel on February 19 at which were present representatives of paper mills which purchase wood pulp and at which action was taken to form a permanent association to be known as the Association of Pulp Consumers. This action was the result of sentiment among converting mills that only through united action can they be assured of an ample supply of wood pulp at fair prices. Headquarters of the new group will be established shortly.

Directors of the newly-formed Association consist of J. N. Bergstrom, Bergstrom Paper Company, Neenah, Wisconsin; Douglas Crocker, Crocker-Burbank & Company, Fitchburg, Massachusetts; D. G. Driscoll, Sorg Paper Company, Middletown, Ohio; G. K. Ferguson, Watervliet Paper Company, Watervliet, Michigan; H. H. Hanson, W. C. Hamilton & Sons, Miquon, Pennsylvania; D. G. W. Hollister, A. P. W. Paper Company, Albany, New York; Robert Nelson, Glassine Paper Company, West Conshohocken, Pennsylvania; W. I. Osborne, Jr., Cornell Wood Products Company, Chicago; J. F. Ryland, Standard Paper Manufacturing Company, Richmond, Virginia; and G. R. Wallace, Fitchburg Paper Company, Fitchburg, Massachusetts.

Sulphite Paper Manufacturers Association

James Donaldson, president of the Stora Kopparberg Corporation, wood pulp agents of New York, made the following address before the annual meeting of the Sulphite Paper Manufacturers Association at the Waldorf-Astoria Hotel, New York, on February 18:

You will pardon me if first of all I make a personal reference. I am an American of Scotch ancestry, and not, as many assume because of my close association with Swedish industry for more than twenty years, an American of Swedish ancestry. No doubt the son at the end of my name has created this erroneous inference.

This personal reference assumes important proportions in my mind, as I hope it will in yours, because as a representative of the Swedish pulp industry I have consistently advocated to them policies, practices and developments that were constructive, suitable to our market and cooperative with our American industry. It is to the lasting credit of the Swedish industry that my advocacy of these policies, practices, and developments has always elicited a sincere practicable response.

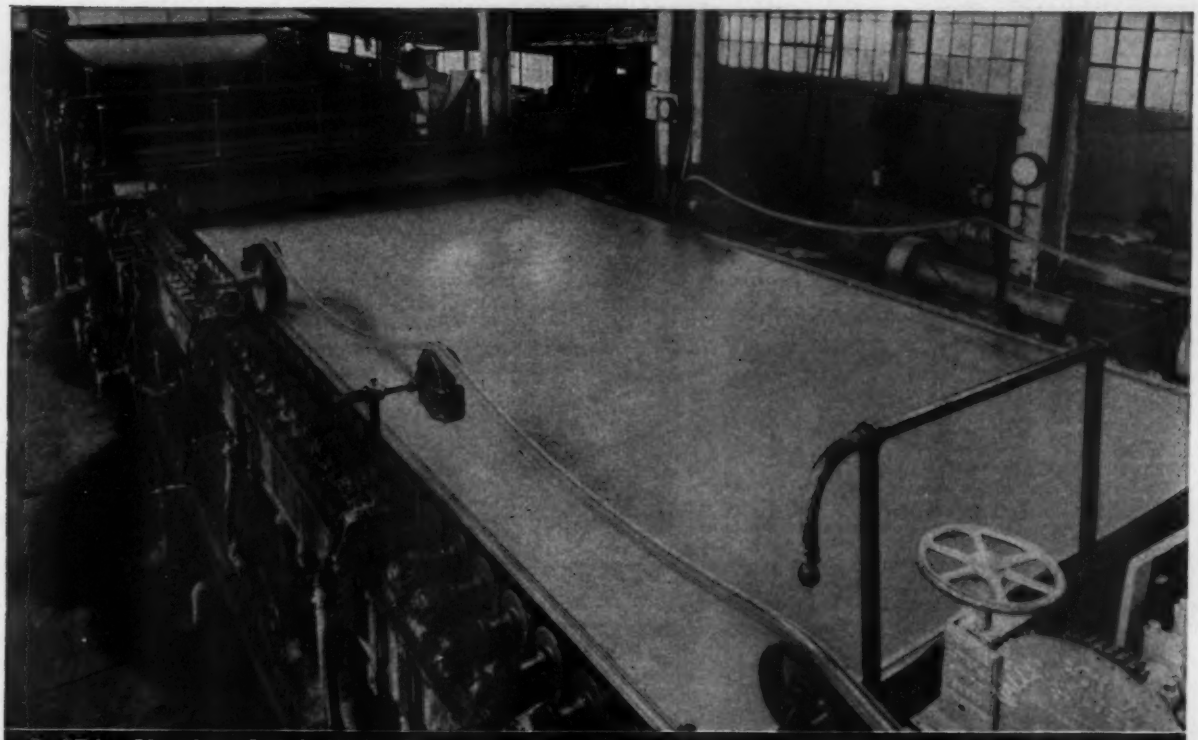
A year has passed since your last meeting. During that time many happenings have occurred that have affected your business in various ways. War clouds now hang more heavily over our heads and the whole future is clouded with uncertainties. The warring powers of Europe have effectively shut off by a double blockade all shipments of pulp from Sweden. The Swedish pulp industry is therefore operating on a very restricted basis. The going is hard. You, however, have fortunately been able to come through 1940 with few hardships, due to the heavy inventories of imported pulp that you built up late in 1939 and during the first four months of 1940. Then, too, domestic sources of pulp have been increased by both the forced draft operations of American pulp producers and by the reopening of marginal mills both in the States and in Canada. Nevertheless, many of you will soon feel the pinch of an insufficient supply of pulp, and more particularly as regards the many special grades you normally use. However, I am confident you will weather through and especially so because of the good leadership and judgment that is apparently never lacking within our industry during such periods of emergency. On the whole, I believe the entire paper industry has indeed been fortunate in that good judgment has been so evident in the actions of the domestic pulp producers to date.

But when peace comes, what then? Already we can recognize two reactions to this question. One is that of fear, the other of courage. In an attempt to escape realities it would seem that the only thought of those possessed with fear is to run to Government and to labor for protection. That is the course men who desire to remain free must avoid. The other reaction is to face the facts and study the necessary steps to take in bringing about constructive thinking and planning for the future. The latter is the successful way, the course that self reliant leaders will choose.

Let us briefly consider the application of the protectionism theory to our industry. Can a high tariff wall placed on pulp and paper accomplish any worthy goal? I personally believe the answer is "No," because along with many other obvious disadvantages it would severely penalize, and perhaps kill a major portion of an important group of our industry, namely the converting mills who are dependent on free access to the many specialized grades of pulp imported from Scandinavia. What is more, and this is just as important an objection in my mind, is that protectionism eventually turns inward and fosters sectionalism, and that means there is created greater internal discord in both industry and labor.

Now let us consider what is meant by facing the facts and what constructive planning will accomplish. It first means we continue to operate our business without paying the price that Government and labor protection demands which alone will enable us to operate in both domestic and world markets as free agents. In the second place it means that each group within our industry must function in its proper sphere of activity, and so, help to build a unified industry that will become healthy because it becomes stable.

When peace comes, what then? You are of course particularly anxious to learn what the Swedish reaction is to this question.



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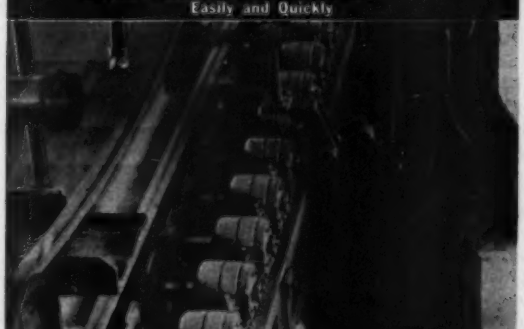
Simplex Features Permit Wire Changes Made Easily and Quickly



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SIMPLEX TYPE FOURDRINIER

The word SIMPLEX identifies a Bagley and Sewall Fourdrinier. The numerous distinctive features of the Simplex Fourdrinier make it the outstanding one on the market today.

Much time and effort has been put into the development of the many types of the Simplex Fourdrinier to suit any individual mill condition.

If you are contemplating the present or future installation of a modern Fourdrinier, we would be very glad to assist you in any engineering problem.

THE BAGLEY & SEWALL COMPANY - Watertown, New York

- Builders of Paper Machines and Paper Making Equipment -

SYNCHRONOUS MOTORS

1—200 KVA Westinghouse, 220/440 volts, 60 cycle, 3 ph., 900 RPM., pedestal type, direct connected exciter.

1—150 H.P. Westinghouse, 220/440 volts, 60 cycle, 3 ph., 1200 RPM., 80% P.F. with direct connected exciter.

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1—Ideal Engine type 170 H.P. 440 volts, 60 cycle, 3 ph., without exciter or shaft, 200 RPM., with hand control.

All reconditioned, like new.

TRANSFORMERS

1 PH., 60 CY., OIL COOLED

3—1000 KVA Pittsburgh	22500/4300	9— 25 KVA G.E.	HK 2300/230/460
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3— 500 KVA Packard	23000/11500 — 460	3— 15 KVA Pittsburgh	2300/230/460
3— 500 KVA Maloney	13200 — 460	1— 10 KVA Pittsburgh	4600/2300/230/460
3— 300 KVA G.E.	2300/4000 Y 230/460	1— 15 KVA Pittsburgh	4600/2300/230/460
3— 200 KVA G.E.	4600/2300 — 230/460	1— 100 KVA West.	4300/115/230
3— 200 KVA WE&M	HK 2300/4000 Y 230/460	1— 50 KVA West.	4600/115/230
3— 150 KVA WE&M	2300/4000 Y 460	2—37½ KVA Pittsburgh	2300/230/460
3— 125 KVA WE&M	2300/4000 Y 230/460	1— 30 KVA West.	4400/110/220
3— 100 KVA WE&M	HK 2300/4000 Y 230/460	6— 15 KVA G.E.	H 2300/230/460
3— 100 KVA WE&M	HK 2300/4000 Y 230/460	1— 25 KVA Packard	440/110/220
15— 50 KVA G.E.	HK 2300/4000 Y 115/230	1— 25 KVA West.	440/110/220
1— 75 KVA West.	HK 2300/230/460	1— 5 KVA West.	4600/115/230
3—37½ KVA G.E.	HK 2300/230/460	1— 30 KVA West.	2200/344/488
3—37½ KVA West.	2300/115/230		

Approximately 300 other sizes and ratings available, from 50 KVA down to ¼ KW.

ROTARY CONVERTER

2—200 KW G.E., HCC 1200 RPM., 275 volts, D.C., with 65 KVA., 2300/4000 Y transformers, hand control for A.C. and D.C.

A.C.-D.C. MOTORS — PUMPS — FANS — LOCOMOTIVES — COMPRESSORS
AVAILABLE IN SCRANTON STOCK.

SEND US LISTS OF EQUIPMENT YOU HAVE FOR DISPOSITION.

PENN ELECTRICAL ENGINEERING COMPANY

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First of all let me assure you that this question has been raised in Sweden and is being considered there just as you are considering it here. The Swedish industry is also thoroughly cognizant of the many changed conditions that their industry will face in the future. I am confident in my assurance that Sweden's reaction will be that of courage. If the market demands which followed the ending of the last war are any guide to the coming post war period, and they well might be, there will come about a great demand from all parts of the world for woodpulp and lumber to the extent that accumulated stocks will soon disappear, and most probably at very satisfactory price levels. Besides, getting the pulp industry in Scandinavia restarted to anywhere near a full output will require time and it is to be expected that operating cost and ocean freights will stay high because of the great shortage of steamers with which to carry on world trade. But suppose the situation does not follow a course parallel to what occurred after the last war. Again I repeat, Sweden's reaction will be that of courage. Naturally, they will be anxious to re-establish their trade with the United States, which trade has in the past been so productive for both countries. Swedish industry is however even now fully aware that the re-entry of their pulp into this market in an orderly and constructive manner is of great importance to both countries. Let me therefore hasten to disabuse your minds that there will follow at the end of the war a chaotic period of dumping large stocks of pulp into this market. It just will not be permitted to happen, and in making this statement I do so not without some assurances. I predict that instead of such a happening, there will be a concerted and sincere effort made by Swedish industry to work hand in hand with our respective Governments and associations in re-establishing the important and profitable trade that has always existed between our respective democracies.

Today you start a new year of association activities. You elect officers and start planning for the future. Never before have you faced greater responsibilities or necessity for establishing unity of action and purpose. The hope for the future welfare of the paper industry depends upon your success. No doubt exists in my mind that you will accomplish your task in a magnificent way.

It is my hope, in bringing forward this question of when peace comes what then, to the attention of the executives of both the American and Swedish Industry, that we can avoid the pitfalls of haphazard drifting or the rash acts of irresponsible groups, either of which can result in developments injurious to all. It is my hope that we can, by good statecraft, lay the cornerstone now for future understandings and cooperation that will benefit both America and Sweden.

Swedish industry wishes you success, and makes the earnest plea that you carry on with your arduous task confident of her understanding of your problems and appreciation of your ability and vision. I am confident, when the time comes for action to speak louder than words you will receive full cooperation from Sweden in the great rebuilding job we all face for the future.

Paper Makers Advertising Association

M. A. Park, of the Marvellum Company, Holyoke, Massachusetts, was elected president of the Paper Makers Advertising Association at the annual luncheon-meeting of that organization held on February 17 in the Hotel Lexington, New York, succeeding Floyd Triggs, of the Riegel Paper Corporation, who stepped down from the presidency after serving three annual terms.

Other officers elected were Richard A. Faulkner, International Paper Company, New York, eastern vice president; Eugene S. Colvin, Appleton Coated Paper Company, Appleton, Wisconsin, western vice president; Bradley Stafford, Strathmore Paper Company, secretary, and Floyd Triggs, treasurer.

The guest speaker at the luncheon was C. R. Larrabee, managing editor of *Printers' Ink*, who, with dry humor, presented a short talk on "Advertising's Sixth Column."

Committee on Co-ordination of Research

The Committee on Co-ordination of Research of the American Paper and Pulp Association, W. R. Maull, chairman, held a meeting on the afternoon of February 18 in the Waldorf-Astoria, at which a review of activities of the past year was given and the program for 1941 discussed. Following the meeting it was announced that no action was taken for a general report at this time.

Glazed and Fancy Paper Association

The Glazed and Fancy Paper Association held its annual meeting in the Commodore Hotel, New York, on February 17, and elected Leo R. McDevitt, of the Blackstone Glazed Paper Company, president to succeed Harry B. Conklin, of Louis Dejonge & Co. John M. Hazen, Hazen Paper Company, was elected vice president of the Manufacturing Division, and George J. E. Buell, of Charles W. Williams & Co., New York, vice president of the Merchandising Division. Retiring president Conklin, and James T. Cronk, Hampden Glazed Paper & Card Company, and Charles H. Hoffman, Hughes & Hoofman, were elected to the Executive Committee.

Walter P. Miller, representing the National Paper Box Manufacturers

Good Cores mean

Good Rolls

Rolls of paper begin with the core. Therefore, good cores mean good rolls. Elixman Paper Cores, constructed of straight wound, specially designed paper, permit the formation of strong, tightly-wound rolls because the paper lies snugly to the core the moment winding begins. Elixman cores, are light weight (thereby minimizing shipping costs) and are equipped with patented, heavy-duty caps which give added strength and durability to the paper core.

ELIXMAN PAPER CORE CO., INC.

CORINTH, N. Y.

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KALAMAZOO
VEGETABLE
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Association, addressed the meeting and proposed that his association and the Glazed and Fancy Paper Association stage a joint advertising campaign, which was approved by the meeting and referred to the Executive Committee for further consideration. Arthur A. Thomas, who serves the Glazed Association as executive director, reported the group has a membership of 27 firms, and is in a healthy financial condition.

Glassine and Greaseproof

Members of the Glassine and Greaseproof Manufacturers Association held their annual meeting on February 19 in the Waldorf-Astoria Hotel, and re-elected Folke Becker, of the Rhinelander Paper Company, Rhinelander, Wisconsin, as chairman for the ensuing year. The Executive Committee chosen consists of Olaf Hedstrom, Hartford City Paper Company; Paul K. Hodgdon, Deerfield Glassine Company; Harry B. Kuhns, Nicolet Paper Corporation; Paul F. Moore, Westfield River Paper Company; Robert F. Nelson, Glassine Paper Company, and John L. Riegel, Riegel Paper Corp.

The annual meeting was followed by a luncheon served in Pillement F Suite of the Waldorf.

The Tissue Association

Under the leadership of J. M. Conway, president of the Hoberg Paper Mills, Green Bay, Wisconsin, and president of the Association, The Tissue Association has devised an "Industry Manual" which will define what members may expect of the Association and how to obtain the services they expect. This manual will be ready for distribution shortly, it was announced at the annual meeting of the Association on February 18 in Le Perroquet W Suite of the Waldorf-Astoria Hotel.

Mr. Conway was re-elected president of the Association; Dwight G. W. Hollister, of the A. P. W. Paper Company, was re-elected vice president; Sam Wishnick, of the Park Tissue Mills, was re-elected treasurer, and Ross A. Fife was again named executive secretary and assistant treasurer.

The following Board of Governors was chosen for 1941: A. B. Hansen, Northern Paper Mills; F. W. Plowman, Scott Paper Company; B. I. Reider, Victoria Paper Mills; Howard Larsen, Crystal Tissue Company; B. F. Picola, Gotham Tissue Corporation; Norman Seagrave, Port Huron Sulphite Paper Company; W. Servotte, Bay West Paper Company; W. E. McIntyre, McIntyre Bros. Paper Mfg. Company; William Shafer, Flower Tissue Mills; George Stuhr, Southern Kraft Corporation; R. B. Stevens, Stevens & Thompson Paper Company, and R. W. Sweet, Sweet Bros. Paper Mfg. Company.

William Shafer was elected chairman of the Wrapping Tissue Division; R. W. Sweet chairman of the Jumbo Roll Division, George Stuhr chairman of the Paper Towel Division, R. B. Stevens chairman of the Roll Toilet Tissue Division, and Dwight G. W. Hollister chairman of the Interfold Toilet Tissue Div.

Specialty Paper and Board Affiliates

The Specialty Paper and Board Affiliates held a meeting and luncheon in the Waldorf-Astoria on February 19, at which was elected an Executive Committee for the ensuing year consisting of Paul R. Bachman, Harry S. Lewis, Samuel Sutphin, Arthur Waring, Kenneth Wyman and Stuart Foster. Election of a president and vice president will take place at the March meeting of the Association. Mr. Bachman, of the Riegel Paper Corporation, is now president of the Association, and Mr. Lewis, of the J. P. Lewis Company, is vice president.

◆

HEAVY BOOKING FOR PACIFIC COAST EXPOS.

During the week of June 16 to 20, a series of engineering meetings will convene in San Francisco, all in conjunction with the Pacific Heating & Air Conditioning Exposition to be held in the Exposition Auditorium. Similar expositions have been held biennially for a number of years by the International Exposition Company.

The forthcoming exposition will be under the auspices of the American Society of Heating & Ventilating Engineers, and will be held in conjunction with the summer meeting of that Society which has a relatively large membership on the Pacific Coast. The Heating, Piping, and Air Conditioning Contractors National Association will also meet during the same period.

Charles F. Roth, president of the International Exposition Company is manager of the Exposition, and E. O. Eastwood, of Seattle, has accepted the chairmanship of the Advisory Committee. Professor Eastwood is first vice president of the American Society of Heating & Ventilating Engineers and the head of the Department of Mechanical Engineering at the University of Washington.

According to Mr. Roth, about three-fourths of the exhibition space offered has already been booked.

CONVENTION SIDELIGHTS

▶▶▶ Horace A. Moses, 79 years old and still in active management of the Strathmore Paper Company, was hailed as dean of the Writing Paper Industry at the 80th anniversary banquet commemorating the founding of the Writing Paper Association, the oldest trade association in the United States.

▶▶▶ The Rising Paper Company has bought an ambulance from company funds for use of the British American Ambulance Corps, the cost being $1,350.

▶▶▶ Unusual war requirements for paper are beginning to appear. One such order was recently placed by the Government for 2,500 tons of heavy paper for rifle targets. This quantity is indicative of the extent to which soldiers in the expanded Army will be on the target range, for each target will suffice for half a day's shooting.

▶▶▶ The Oswego River Paper Mills, making toilet tissues, has been sold to Victor Cohen of New York, who will rename the old mill at Phoenix, New York, as the Oswego Tissue Mills.

▶▶▶ Four Strathmore men have been released for service as officers in the expanding Army, as follows: Second Lieut. Robert B. Clark, to the Ordnance Publicity Department in Washington; First Lieut. Samuel C. Pace, Ordnance, to the Chicago Ordnance District Office; Capt. Thomas L. Hapgood, Ordnance, to the Springfield Ordnance Office of the Hartford district; Maj. Paul A. Wilks, on duty at one of the infantry division camps.

▶▶▶ Hayward Beatty, manager of the fine paper department of George W. Millar Company, New York, has resigned to become vice president and general manager of the Curtis Paper Company of Newark, Delaware. H. H. Krudrop, his assistant at the Millar company succeeds him.

▶▶▶ Rufus L. Sisson, Jr., has been elected vice president of the Racquette River Paper Company, succeeding the late Charles H. Sisson. George W. Sisson, Jr., the veteran president of the company, and former president of the American Paper and Pulp Association, was in New York through the entire convention.

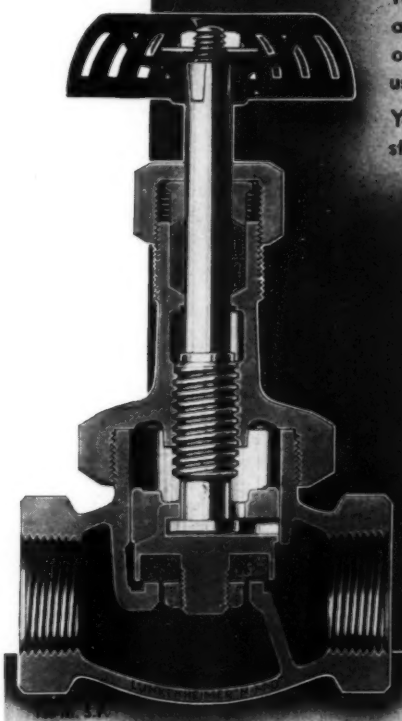
▶▶▶ The resignation of Edward M. Graham as president of Eastern Corporation was announced at a breakfast meeting of the sales staff. No successor has been selected as yet, according to Vice President Charles G. Paine. About fifty merchants were guests at the breakfast.

TAKE A Fig. 123 'N-M-D' Valve Apart

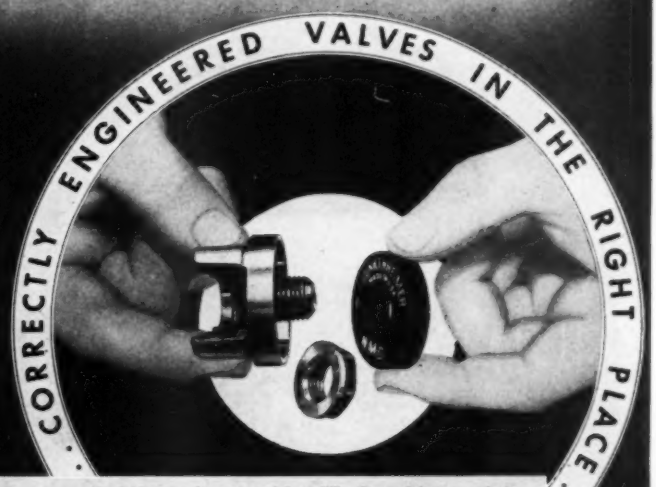
COMPARE IT POINT BY POINT

Take a Fig. 123 "N-M-D" Valve in your hands—get its feel of sturdiness and ruggedness—take it apart and compare it point by point with any other similar type valve—then you'll see why so many discerning valve users have switched to Fig. 123 for general service requirements.

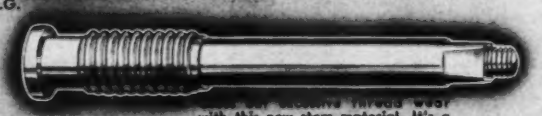
Your Lunkenheimer distributor will help you make this convincing demonstration. Just call for a Fig. 123 "N-M-D" Valve—then you be the judge.



300 lb. W.O.G.



Disc can be renewed in a jiffy. The quickest way is to keep a few extra holders on hand with new discs inserted. Slip the holder with worn disc off the stem, replace with one of the extras, and the valve is again ready for service.



...with this new stem material. It's a recent Lunkenheimer development that gives five to ten times more wear resistance.

Ever have to pry a gland out of the stuffing box? Then you'll appreciate this hexagon head gland. Just apply a wrench — no prying necessary.

Note the well-proportioned body and full flow areas. And that heavy body neck is made to withstand distortion.

...lightly opening the valve prevents disc holder from dropping off stem when disassembling valve. Entire trimming assembly can be held in one hand.

Accurate disc guiding means accurate seating. This disc holder has *four* long guides always in contact with the body neck. Holder carries disc straight and true to its seat.

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TECHNICAL BUREAU ORGANIZED IN CANADA

Formation of a new agency to cope with the problem of furnishing "scientific and technical personnel" to aid the war effort has been announced by Labor Minister McLarty. Organization of the agency, known as the Wartime Bureau of Technical Personnel is already underway. In co-operation with other technical organizations, the bureau will act as a national agency the function of which is to recruit and place scientific and professional personnel in the war industries.

E. M. Little, Quebec, general manager of Anglo-Canadian Pulp and Paper Mills and general manager of Gaspesia Sulphite Company, Ltd., has been appointed to direct the bureau. A committee representing various co-operating professional institutes will serve in an advisory capacity. Responsibility for organizing the bureau has been delegated to the Engineering Institute of Canada, the Canadian Institute of Mining and Metallurgy and the Canadian Institute of Chemistry.

◆

CHEMICAL SOCIETIES HOLD JOINT MEETING

A meeting of the American Section of the Society of Chemical Industry was held February 28 at The Chemists' Club, 52 East 41st Street, New York City. This was a joint meeting with the American Institute of Chemical Engineers. The chairman, Dr. Lincoln T. Work, presided.

The meeting took the form of a symposium on wetting agents. The first speaker was Prof. F. E. Bartell, professor of chemistry of the University of Michigan, who presented a paper on "Theory of Wetting Agents." Wetting agents have polar and non-polar groups in the molecule. Through orientation at interfaces they bring about a decrease of the interfacial energy and thus serve to give higher adhesional forces at these interfaces. To evaluate properly a wetting agent for a given purpose one must know the energy values, and the energy changes that can be brought about, at the interface or interfaces of the system in question. Surface tension, interfacial tension and contact angle measurements are essential for the determination of energy changes which occur and which give a measure of the degree of wetting of a solid by a liquid.

C. R. Caryl, of the American Cyanamid Company, spoke on "The Structure of Wetting Agent Molecules." Confining the discussion to synthetic organic compounds, comparison was made of the wetting power and other characteristics of several members from each of four homologous series, (1) the sulphated primary alcohols, (2) the sulphated secondary alcohols, (3) the alkyl benzene sulphonates, and (4) the sulphonated esters of succinic acid. Variations in polar groups and in non-polar groups cause wide differences in their properties. New data were presented for the sulphonated esters of succinic acid, on the area and length of the molecules, and their orientation at an interface as a function of time. Electron microphotographs of sulphur and bacteria treated with wetting agents were shown.

Dr. Samuel Lenher of the Organic Chemicals Department of E. I. du Pont de Nemours & Company discussed "Uses of Wetting Agents." He reviewed the present commercial uses of wetting agents, discussed uses of penetrants where soap is replaced, mentioned newer applications of wetting agents with special comment on uses which appear to be novel, and gave a history of the development of commercial agents to their present place in industry.

Professor Bartell is a graduate of Albion College and the University of Michigan, having received the Ph.D. degree in 1910. He has been a member of the chemistry staff of the University of Michigan since 1910. He has carried out numerous researches in the field of colloid and surface chemistry, including work on protective coatings, on pigments and on petroleum production. During the past 15 years he has published over 50 papers relating to adsorption, adhesion and wetting phenomena.

Mr. Caryl received the B.S. degree from Kalamazoo College in 1914 and the M.S. degree from Yale in 1916. He has held positions in Cott-a-lap Company, the Upjohn Company, Standard Textile Products Company and Textileather Company. Since 1924 he has been in sales and technical service with the American Cyanamid Company, at present in liaison work between sales and research. He is the author of papers on phthalic anhydride, dicyandiamide and wetting agents and the patentee of several patents on Cyanamid products.

Dr. Lenher received the B.A. degree from the University of Wisconsin in 1924 and Ph.D. degree from University College, London, in 1926. He did research work at the University of Berlin in 1927-28 and the University of California in 1928. At present he is Technical Manager of the Fine Chemicals Division of the Organic Chemicals Department of E. I. du Pont de Nemours & Company.

THREE WISCONSIN MILLS AWARDED GOVT. CONTRACTS

Three Wisconsin paper firms have been named as sources of supply under contracts awarded by the Government Printing Office at Washington. The Neenah Paper Company, Neenah, was named source of supply under a $188,-321 contract for paper awarded the Marquette Paper Company, Chicago; the Fox River Paper Corporation, Appleton, was named source of supply under a $119,216 contract for paper awarded the Graham Paper Company, St. Louis; and the Whiting Plover Paper Company, Stevens Point, under a $99,205 contract for paper awarded the Baxter Paper Company, Baltimore.

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▶▶▶ THE SEVEN-CENTURY old institution, the Leipzig Trade Fair, will open the 1985th session on March 2, despite the economic barriers set up by war conditions in Europe. Preparations for the Spring Fair have been under way for some time, and it is already evident from advance bookings received that the available 24 Fair Palaces will be filled to capacity. Already 16 nations have announced participation, either through collective or individual exhibits.

◆

PAPER MILL FELTS FOR OVERSEAS RELIEF

The movement to send to Great Britain blankets made of paper mill felts, has met with a generous response.

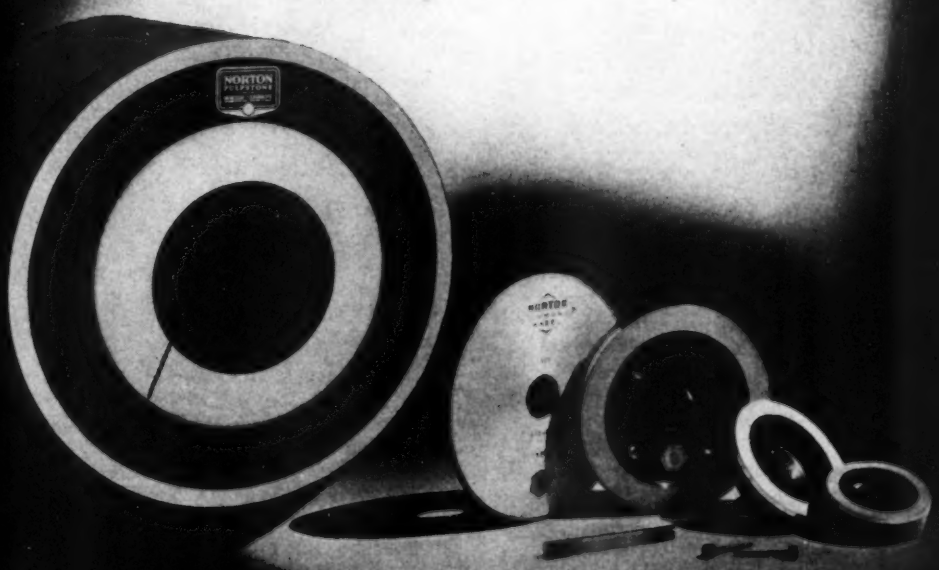
The Maple Leaf Fund, one organization shipping supplies to Great Britain, has announced that through the splendid co-operation of the National Paperboard Association, it has been able to ship a very good supply of much needed blankets processed from paper mill felts. Up to February 1, 1941, 7,003 blankets made from felts donated by 46 paperboard manufacturers have been shipped under the arrangement between The Maple Leaf Fund, Inc., and the National Paperboard Association. W. W. Pickard, formerly co-ordinator for the paper and pulp industry, is handling this project in behalf of The Maple Leaf Fund, Inc.

Companies desiring to donate felts for conversion into blankets are requested to communicate with the National Paperboard Association, 80 East Jackson Blvd., Chicago, stating the location from which the felts are to be shipped, and if possible, the approximate number of pounds in the first shipment. Instructions will be furnished quite promptly.

NORTON ABRASIVES

Norton grinding wheels are made in a hundred thousand combinations—all the way from tiny mounted points that simplify the work of the tool and die maker to the giant Norton Pulpstone which has revolutionized the grinding of wood pulp.

Five branch warehouses in industrial centers. Half a million Norton grinding wheels stocked in 150 key cities. Two million Norton grinding wheels in factory stock rooms.



WHEN IT'S A GRINDING PROBLEM, CALL IN NORTON ENGINEERING SERVICE

NORTON COMPANY
WORCESTER, MASS.

BEHR-MANNING DIVISION, TROY, N. Y. (ABRASIVE PAPER AND CLOTH)

National Paper Trade Association

The National Paper Trade Association of the United States, whose membership comprises the leading paper jobbers and merchants of the country, held its thirty-eighth annual convention at the Waldorf-Astoria Hotel, New York, on February 17-20, inclusive, simultaneously with the yearly gathering of the American Paper and Pulp Association.

The Association re-elected all its officers for the ensuing year. Perry W. Lesh, of the C. P. Lesh Paper Company, Indianapolis, Indiana, was again chosen president; J. H. Brewer, of the Storrs & Bement Company, Boston, Massachusetts, vice president in charge of the Fine Paper Division; C. E. Roach, of the Capital City Paper Company, Springfield, Massachusetts, vice president in charge of the Wrapping Paper Division; C. W. Vernon, of Vernon Bros. & Company, New York, treasurer, and A. H. Chamberlain, of New York City, executive secretary.

John L. Riegel, president of the American Paper and Pulp Association, addressed the paper merchants on the opening day of the convention. Mr. Riegel said:

"I am glad to have the opportunity at this time to speak to the paper merchants.

"You men who are a point of contact between the industry and the final consumer can do much to influence customer buying and industry operations along sound lines.

"You all appreciate that due to the war the volume of general business is tremendously high. The paper business with the stability of a consumer goods industry is operating well but not at the abnormal levels of the heavy goods industries.

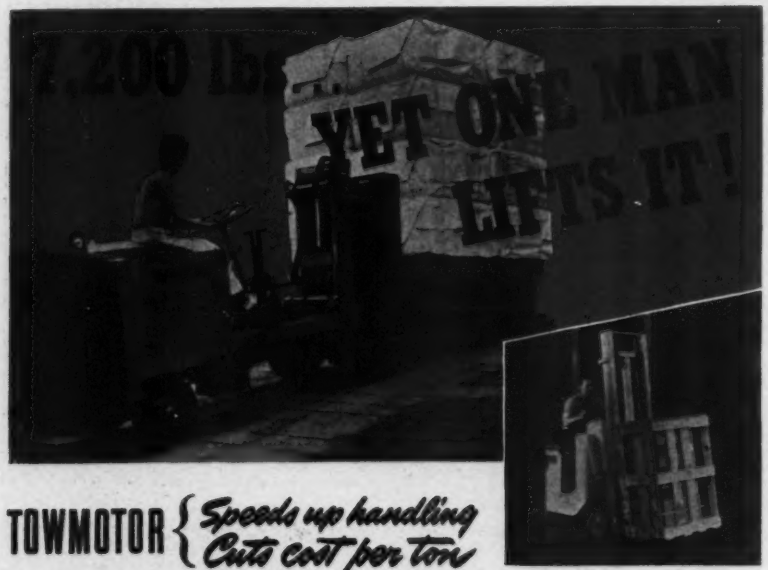
"Volume in the paper industry is now apparently high enough to permit the adjustment of paper prices to levels compatible with raw material costs. The history of the industry indicates that upward price trends do not appear unless operations are at high levels which, by natural economic forces, virtually compel increases. There is little question but what there will be a further increase in volume and further opportunity for price adjustment as changing conditions require.

"On the other hand, exhaustive analyses by the American Paper and Pulp Association indicate that the paper industry has sufficient capacity and flexibility to meet all Government and consumer needs.

"Only a period of frenzied buying would for a short time overtax producing facilities and this would be followed by a rate of operation well below capacity. We all know the grief of such a course and the ensuing heavy inventory losses.

"You can perform a great service to the industry if you can see that your consumers steadily maintain adequate inventories, buy regularly and do not attempt to buy speculatively in excess of their consumption."

Other speakers who addressed the convention included the Hon. Joseph E. Casey, member of Congress from Massachusetts, who spoke on the subject of "Democracy in a Crisis;" Dr. Theodore N. Beckman, professor of Business Organization, Ohio State University, on "The Role of Paper Distributors in National Defense;" Hamilton Wood, president of the Commonwealth Press, Worcester, Massachusetts; Arthur H. Motley, vice president of the Crowell-Collier Publishing Company, New York, and J. K. Javits, counsel for the Association.



TOWMOTOR { *Speeds up handling* / *Cuts cost per ton*

It's amazing how much work one man and a Towmotor can handle. Take the above job, for instance. In *less than 2 minutes* Towmotor picks up this 16-bale load (7,200 lbs.), moves it 250 feet (500 ft. round trip) and returns for another load. Costs? About 4c per ton. Man, that's efficiency! But that's not all. Towmotor picks up, carries, stacks . . . raw materials, pulp, rolls, flat sheets, finished products. Saves time, money, all the way. *CAPACITIES:* 1,000 to 10,000 lbs. Any lift to 212 inches. Speeds: 1 to 9 m.p.h., 2 speeds forward, 2 reverse.

● For carloading and all work in cramped quarters, it's the LT-40.

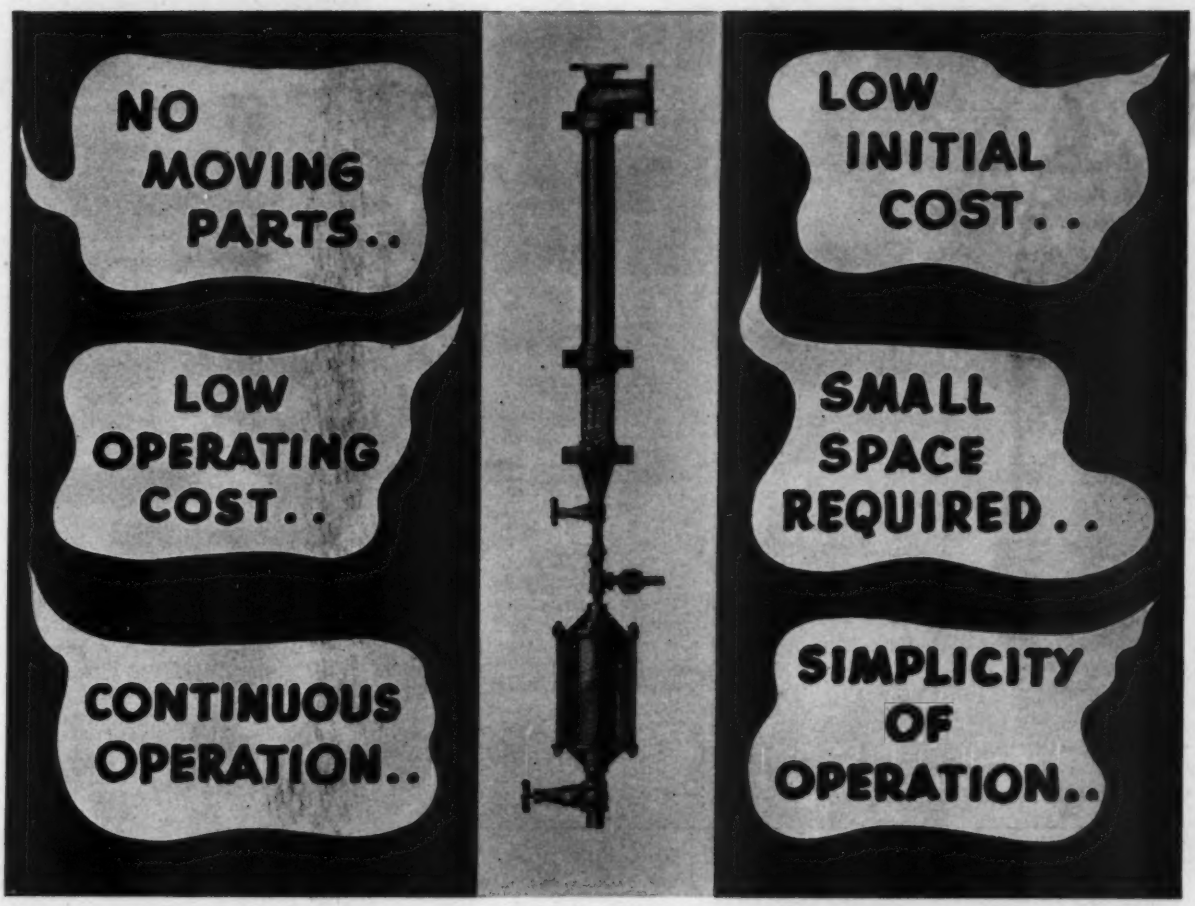
● Towmotor LT-40 stacks 1400 lb. roll of kraft.

Write for Bulletin!

Tells the whole story of how Towmotor can help to speed up handling, save time, money in your plant.

TOWMOTOR COMPANY
1271 E. 152nd St. Cleveland, Ohio

Let TOWMOTOR (CLEVELAND) *take the load off your hands*



THESE SIX FACTS ARE BIG ADVANTAGES YOU GET WITH

VORTRAPS

OVER 1500 VORTRAPS NOW IN USE

The VORTRAP facts shown above are worthwhile advantages, but the most outstanding feature is that the mill will always be assured of clean pulp or paper.

No better salesman is available for any pulp or paper mill than the reputation of a consistently high quality product.

Bulletin 209 tells how VORTRAPS eliminate spots and specks and maintain uniformly high quality products.

NICHOLS ENGINEERING & RESEARCH CORPORATION

60 WALL TOWER BLDG., NEW YORK, N. Y. NERCO UNIVERSITY TOWER BLDG., MONTREAL, P. Q.

ASSOCIATION REPORTS

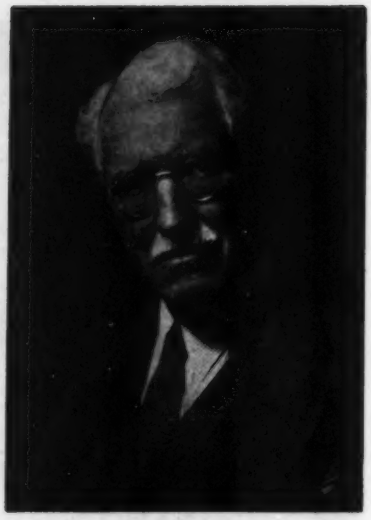
Newsprint Paper in 1940*

ROYAL S. KELLOGG, Secretary
News Print Service Bureau

Continental production of newsprint in 1940 in round numbers was 4,785,000 tons, an increase of 668,000 tons over 1939 and, with the exception of the year 1937, the greatest on record. Since for well-known reasons the abnormal production of 1937 was followed by the subnormal production of 1938, the 1937 figure should not be used alone for the purpose of studying trends. Striking an average for 1937-38 of 4,328,000 tons gives a fairer comparison of 457,000 tons under the 1940 output. It is more correct to regard 1940 as setting the all-time high to date for North American newsprint output. This heavy production was stimulated by an increase of 255,000 tons in overseas exports over 1939 and a decrease of 276,000 tons in imports of European newsprint—both due to the war. It is obvious therefore, that without war effects there would have been no noteworthy continental newsprint output last year.

The North American production of 4,785,000 tons of newsprint was supplied to the extent of 3,419,000 tons or 71 per cent by Canada, 1,013,000 tons or 21 per cent by the United States and 353,000 tons or a little more than 7 per cent by Newfoundland. The gain in Canada was 19.2 per cent, that in the United States 7.9 per cent and that in Newfoundland 14.5 per cent, making a combined increase of 16.2 per cent. Canadian production was larger than in any preceding year except 1937, United States output was more than in any year since 1931, while Newfoundland turned out slightly more than in any year previous in the history of the newsprint industry in that colony. Long-time trends in newsprint production are shown in the chart.

On the basis of industry-accepted figures as to capacity, newsprint operations in 1940 were at about 78 per cent in Canada, 93 per cent in the United States and 94 per cent in Newfoundland, or a continental average of 82 per cent. Since North America was called upon to supply newsprint last year more widely and in larger quantities throughout the world than is likely to be the case under any peace-time set-up, it is obvious that there is ample machine capacity on the continent to take care of any foreseeable future demands for newsprint—providing controlled economies permit the procurement of materials, their fabrication and shipment of the product.

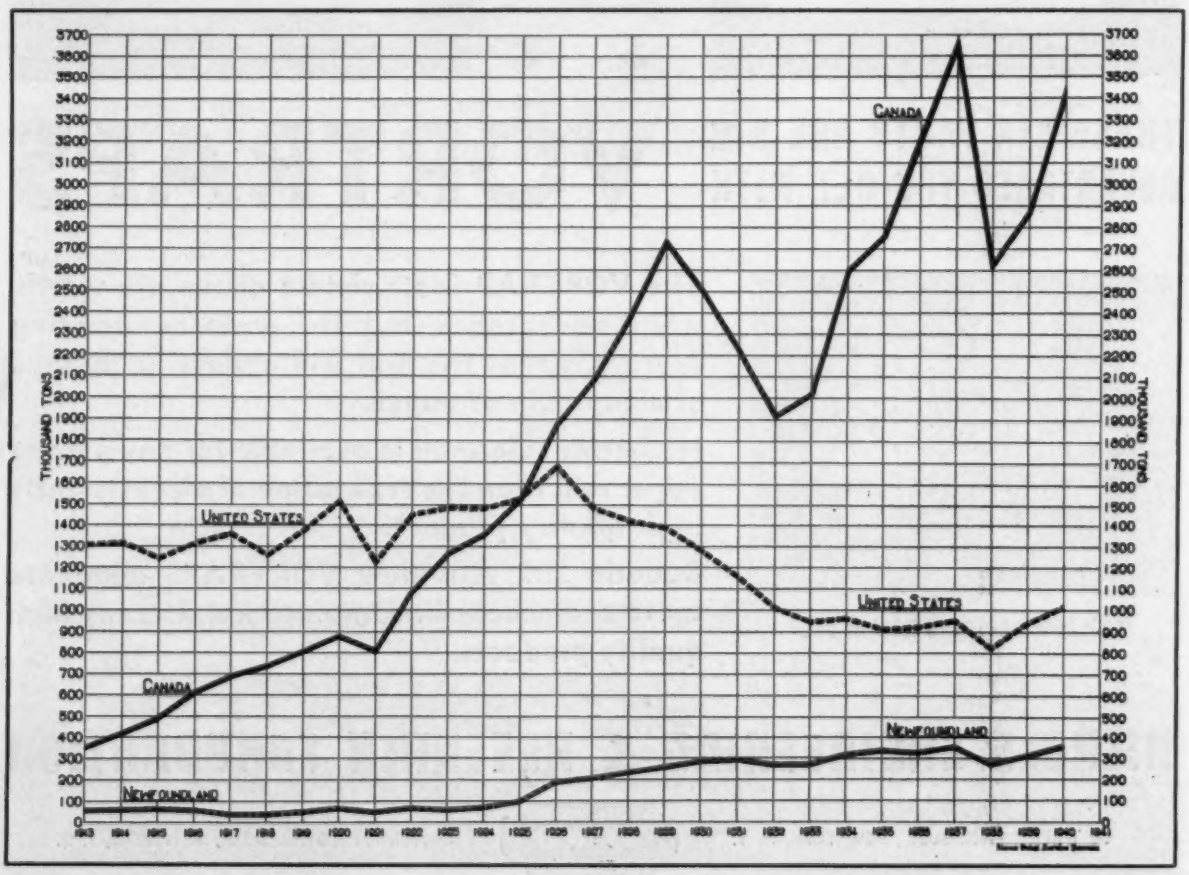


Royal S. Kellogg

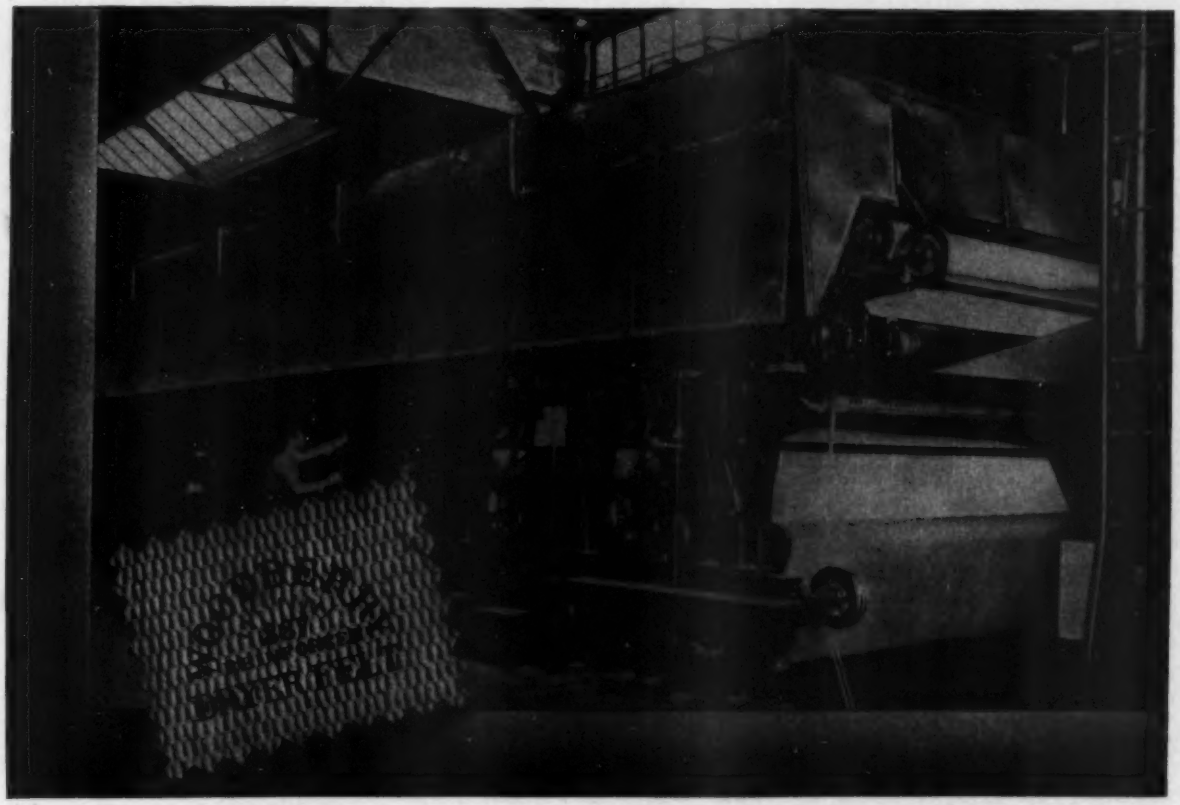
Shipments from the mills more than kept pace with production during 1940, so that at the end of the year there was nearly 13 per cent less tonnage in mill stocks than at the end of 1939. While this percentage sounds large, it represents a decrease of only 33,000 tons since mill stocks of newsprint are never large in relation to the annual output.

Exports

Exports of newsprint from Canada in 1940 amounted to 3,243,000 tons or 95 per



3 Way Economy With WOODBERRY 887 Reinforced Dryer Felts



Asbestos yarns woven at intervals into the face of WOODBERRY 887 dryer felts greatly prolong their life and reduce dryer felt costs per ton of paper produced.

Other lowered operating costs also invariably follow their use. With WOODBERRY 887's, steam consumption is low. Shrinkage and stretch in these precision built felts has been reduced to a minimum. They require fewer adjustments and account for fewer interruptions in production schedules.

Finally, with WOODBERRY 887's, there is that intangible economy which results from the maintenance of a consistently high quality of paper which these highly uniform felts help to produce. Specify WOODBERRY 887 reinforced dryer felts for three way dryer felt economy.

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cent of production. This was an increase of 584,000 tons or 22 per cent from the 1939 figure of 2,659,000 tons.

Of the 1940 Canadian newsprint exports, 2,586,000 tons or 80 per cent came to the United States and the balance of 657,000 tons went all over the world. The increase in shipments to the United States last year was 380,000 tons or 17 per cent, while the gain in overseas shipments was 204,000 tons or 45 per cent from 452,000 tons sent overseas in 1939.

A study of the details of Canadian overseas shipments of newsprint in 1940 gives abundant evidence of the effect of the European war. Due to restricted consumption in the United Kingdom, 145,000 tons were shipped there in 1940 compared with 177,000 tons in 1939. Elsewhere, however, it was a different story. Australia and New Zealand took 193,000 tons compared with 154,000 tons the previous year, Argentina 87,000 tons compared with 38,000 tons, Brazil 33,000 tons compared with 6,000 tons and Mexico 30,000 tons compared with 3,000 tons the preceding year. China received 13,000 tons of Canadian newsprint, British India 25,000 tons and the rest of Asia 12,000 tons, a total of nearly 50,000 tons contrasted with 5,000 tons in 1939, and so around the world Canadian newsprint is being called upon to take the place of much tonnage normally going to these markets from Europe, which because of the war was unable to move.

Newfoundland sent 196,000 tons or 56 per cent of its production overseas last year, the balance going to the United States. This was an increase of 19,000 tons in the overseas shipments from that colony in 1939.

Exports of newsprint from the United States amounted to something last year for the first time since 1920, with a reported total of approximately 44,000 tons. The causes therefor of course were the same as for the increase in Canadian shipments. United States newsprint in 1940 went to the extent of 21,000 tons to China and other Asiatic countries, 11,000 tons to the Philippines and 10,000 tons to Cuba, Central and South America. While the total after all was not large in tonnage, it was nearly three and one-half times as great as in 1939.

It should be noted, however, that the United States official figures on newsprint exports include considerable paper which is not standard newsprint. It is probable that standard newsprint exports from the United States did not exceed 15,000 tons.

Imports

Aside from the imports from Canada and Newfoundland of 2,729,000 tons, newsprint coming into the United States last year was less than the amount exported and amounted to only 34,000 tons. This total was made up of 23,000 tons from Finland, 9,000 tons from Sweden and not quite 2,000 tons from Norway. Nearly all of the overseas newsprint came during the first four months of 1940. Since that time there have been only occasional partial cargoes along with other goods exported from Finland via Petsamo, since to get to Petsamo from railhead involves some 300 miles of truck-haul over a gravel road.

Production of pulp and paper in Finland, Sweden and Norway has been difficult since the capitulation of Finland to Russia, the invasion of Norway by Germany and the bottling-up of Sweden. Reports from the associations in those countries give a total of 86,000 tons of newsprint produced in Finland during the first eleven months of 1940 compared with 505,000 tons during the corresponding period in 1939, and of 116,000 tons made in Sweden during the first nine months of last year compared with 225,000 tons in the same months of 1939. In November, for example, the total output of the Finnish newsprint mills was only 6,000 tons. Not a scrap of information as to newsprint production has come from Norway since the Nazis entered.

The total of 34,000 tons of European newsprint imported into the United States in 1940 was, of course, very much less than in any year since that large movement started in 1920. It did not get well underway until the final quarter of 1920, but nevertheless 50,000 tons came in that year.

(*) Abridged.

Review of the Kraft Paper Industry in 1940*

CHARLES W. BOYCE, Secretary
Kraft Paper Association

The operating statistics of the kraft paper industry established new all-time high records in 1940. Increases of from two to six per cent were all that were necessary to bring about these favorable, and, we think, healthy results. In accomplishing this, the kraft paper industry also passed into the $100,000,000 annual sales class for the first time.

Under normal conditions the kraft paper industry is concerned primarily with domestic markets. In 1940, imports were less than two-tenths of one per cent of domestic sales. Similarly, exports have ranged between 1 and 2 per cent of domestic volume in normal years. Because of interference of the war with exportation from European producing countries, 1940 was not a normal year, and United States exports of kraft paper increased to 4 per cent of domestic shipments.

Kraft paper machines operated over all at an average rate of 84 per cent of computed capacity in 1940. This compared with an 82 per cent rate in 1939, a year in which capacities were slightly lower than in 1940. No new machines were installed during the year, but a few machines not formerly devoted to kraft were shifted to our product. Two mills with small-volume interest in kraft discontinued its manufacture.

Charles W. Boyce

It is impossible to review 1940 experience on a monthly basis because domestic conditions were distorted by war influences. Likewise, to compare conditions with those of 1939, similarly distorted, is of little use.

To forecast the future would require more than statistical analysis of known facts.

As we face into 1941 we can see no near term end to the present conflict. We foresee continued heavy domestic consumption of our product, probable increases in demand for exports providing shipping facilities can be obtained, and increasing uses for kraft paper in relation to Defense. There is the possibility that some mills may be taken completely out of the domestic market. Such maladjustments in distribution tend automatically to panic buyers and can lead to attempts to cover for extraordinarily long periods and to speculation.

To meet such possibilities the kraft paper industry has but little spare capacity. As an industry which seems normally to operate at between 80 and 85 per cent of its capacity, there is little backlog of capacity for sudden heavy requirements. Indications are already evident for a large volume year and the Defense program has only just begun!

(*) Abridged.

CONVENTIONS AND COMING EVENTS

March 30-April 5—Forty-third annual meeting of the American Ceramic Society, Baltimore, Maryland.

April 1-4—Eleventh Packaging Exposition and Conference, Stevens Hotel, Chicago.

April 7-11—American Chemical Society, St. Louis, Mo.

April 9-10—Midwest Power Conference, Palmer House, Chicago.

April 15-17—All-Ohio Safety Congress, Columbus, Ohio.

April 16-20—Coastal Empire Paper Festival, Savannah, Ga.

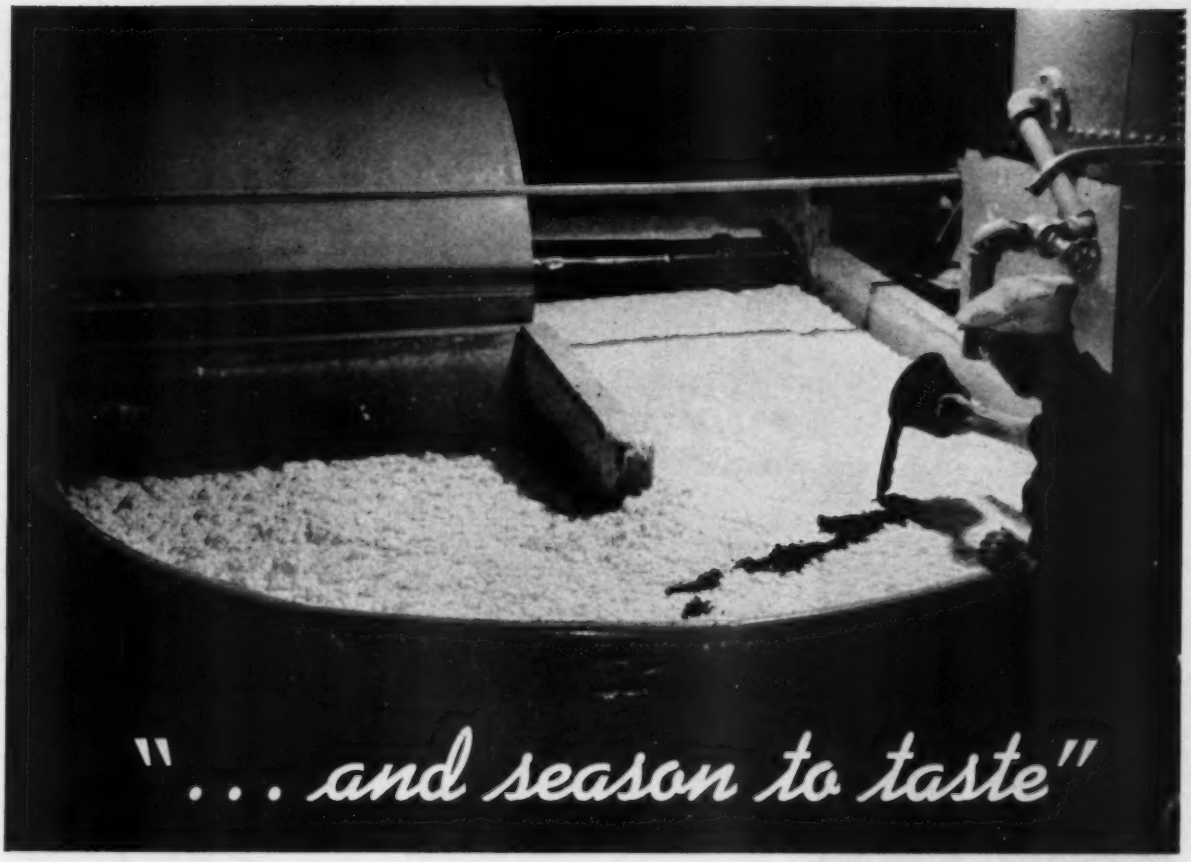
April 24—Fourteenth Annual Rock River Valley Safety Conference, Watertown, Wis.

May 6-8—Midwest Safety Conference, Hotel Sherman, Chicago.

June 17-19—American Pulp and Paper Mill Superintendents Association, Poland Spring House, Poland Spring, Maine.

Sept. 16-20—Fall meeting of the Technical Association of the Pulp and Paper Industry, University of Michigan, Ann Arbor, Mich.

Sept. 17-19—Annual Conference of National Industrial Advertisers Association, Royal York Hotel, Toronto.



COOKBOOK METHODS actually did guide the beaterman not so many years ago. The kind of pulp he turned out depended on his experience and knowledge—and, sometimes, on how he felt that day.

Today, pulp "recipes" at Hammermill are prepared in advance for the beater engineer. Detailed laboratory reports, based on actual tests, tell him how each batch should be beaten, colored, sized.

Every step of Hammermill's process is just as rigidly guided and controlled. That is why Hammermill papers are so favorably and widely known today for their uniform qualities.

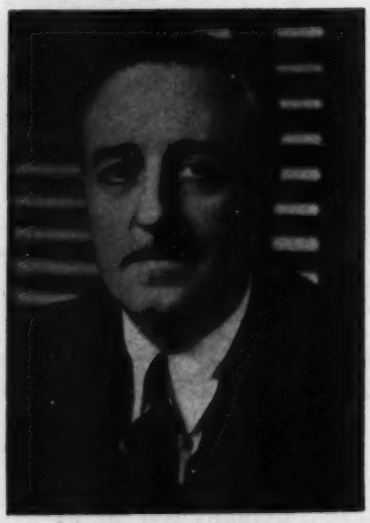
HAMMERMILL PAPER COMPANY • ERIE, PENNSYLVANIA

ALLIED

NEW YORK OFFICE FOR BLACK-CLAWSON SHARTLE-DILTS CORP.

Because the company desires to give the most efficient service possible to pulp and paper mills in the eastern part of the United States, the Black-Clawson-Shartle-Dilts Corporation has just announced the opening of a new branch office in New York City, located at 90 West First Street.

The company has placed in this office



Arthur L. Whiteside

a man who is highly qualified to handle all problems that may be presented by mills in the East or elsewhere. Arthur L. Whiteside, the man who has been placed in charge of this new branch, has had an abundance of experience and knowledge gained during almost 20 years of association with a large number of manufacturing and research organizations. Mr. Whiteside's first important connection after studying mechanical engineering at Ohio State University was with the Hill Clutch Company, which specializes in transmission and agitator equipment in the pulp and paper industry. He advanced to estimator, sales engineer, chief draftsman, and then to New York manager of this firm.

Leaving that connection in 1928, Mr. Whiteside became an independent sales engineer, and as such did considerable research for the Thomas A. Edison Industries and affiliated companies, also acting in the capacity as patent investigator. About that time he made several field operation trips to Sweden.

One thing which stands out in Mr. Whiteside's experience in solving actual mill problems is that he is credited with development of tubular agitators for batch chlorination and adjustable pitch agitators applied to pulp and paper mill agitation. More than 130 such installations have been made under his guidance.

◆

FIRST COMMERCIAL PRODUCTION AT DESERT CHEMICAL

Commercial shipments of Glauber's salt mark the first quantity production of chemicals at the new plant of Desert Chemical Company in Dale Lake, California. The first year's cycle is expected to produce 50,000 tons of anhydrous sodium sulphate, which analyzes 99.5 per cent pure.

Desert Chemical's operations are significant in that they bring into production an apparently unlimited supply of sodium sulphate, and demonstrate a "natural" process of recovery, not possible with other salt deposits. The limited area already completely proven by test wells shows about 12,000,000 tons of sodium sulphate, while the entire property is estimated to hold between 30,000,000 and 35,000,000 tons.

A combination of temperature extremes with low relative humidity, a salt deposit containing only two chemicals (sodium sulphate and sodium chloride) that separate naturally by fractional crystallization, and an abundance of fresh water, makes possible the process used. Cold precipitates the sodium sulphate as Glauber's salt, which is re-dissolved and dehydrated in hot weather. The residual brine, containing sodium chloride, is evaporated in huge lakes.

◆

▸▸▸ A RECENT ANNOUNCEMENT revealed that the Kenosha (Wisconsin) wire mill plant of the American Brass Company will become the property of the United States government, to be used as a brass rolling mill, and as a press room. The company will operate the mill under a lease, manufacturing products for defense purposes. Minor additions to the structure and installation of suitable equipment are being made.

◆

WESTINGHOUSE EXPANDS OPERATIONS

To comply with the increasing demand for radio equipment, the radio division of the Westinghouse Electric Manufacturing Company, Baltimore, is tripling the size of the present operating plant. Walter Evans, manager of the division, made the announcement that by March the plant will have 194,000 square feet available for pro-

From a photograph taken on the property of Desert Chemical Company showing part of the operations used in production of salt cake.

duction of the needed radio equipment. The pay-roll is also expected to be increased to 1500, five times the average for recent years.

The company has recently been awarded government contracts to include construction of numerous types of radio equipment for United States aircraft, and many other special sets for naval vessels and government land stations. The present contracts will keep normal production lines running at full capacity for more than 18 months.

◆

▶▶▶ THE COLUMBIA CHEMICAL DIVISION of the Pittsburgh Plate Glass Company, announced recently that it has opened a chemical sales office at Charlotte, North Carolina. James R. Simpson, former director of Duke University's Appointments Office, has been named district manager in charge of the Charlotte Office.

◆

BAGLEY & SEWALL CO. RE-ELECTS OFFICERS

Officials of Bagley & Sewall Company, Watertown, New York, look toward improved business conditions this year. The company has a full force of about 400 men employed full time.

In addition to orders from South America, this company has an engineer in Australia at the present time completing the installation of a board machine which was shipped the latter part of 1940.

At the recent annual meeting, Abe Cooper was re-elected president of the company. Carroll L. Thompson will remain secretary-treasurer. In addition to the officers, Harry Markowitz and Norman Weltman, of Syracuse, comprise the board of directors.

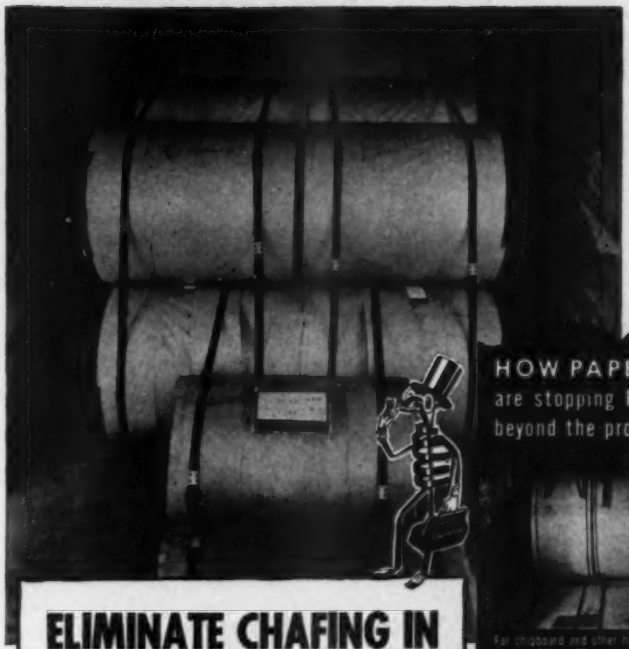
◆

A NEW CELLOPHANE PLANT IN OPERATION

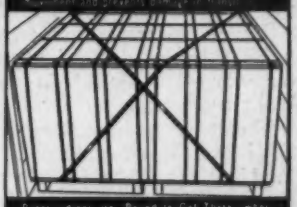
A new manufacturing plant to make "Cellophane" cellulose film will be opened on March 3, at Clinton, Iowa, by the Du Pont Company. This will be the first plant of its kind situated west of the Mississippi and will also be the first one that will be completely disassociated from the manufacture of viscose rayon, a companion cellulose product.

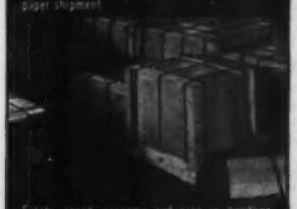
This is the fourth Cellophane plant to be built in America since Du Pont's large scale introduction of the film here from France in 1924. Since the introduction there has been a large decrease in the price; it has been cut from $2.65 a pound down to 33 cents a pound for the same grade product.

Some 200 employees will begin



HOW PAPER MILLS are stopping Profit Leaks beyond the production line





ELIMINATE CHAFING IN TRANSIT WITH ACME SKID-CHECK METHOD

• With demands on production mounting, it is more important than ever that damage to paper shipments be reduced to a minimum. Chafing, caused by oscillation of the individual rolls and one of the principal sources of costly damage, can be eliminated easily and economically by the Acme Skid-Check Method.

In the illustration above, the Acme Skid-Check Method is applied to five-roll units of magazine paper. All the Acme bands are tight and the load will come through with no chafing.

Get full details on this scientific and proved remedy for chafing in transit. We'll be glad to give you complete information on the application. Just mail the coupon.

Mail the coupon for all the facts on these time- and money-saving Acme applications.

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☐ Send full details on Acme Skid-Check Method.
☐ Send literature on Acme Steelstrap and Unit-Load Process.
Name_____
Address_____
City_____ State_____

work with the opening of the new plant. An additional 300, almost all midwesterners with no previous experience in the chemical industry, are expected to be employed and trained in their new jobs before the end of August.

◆

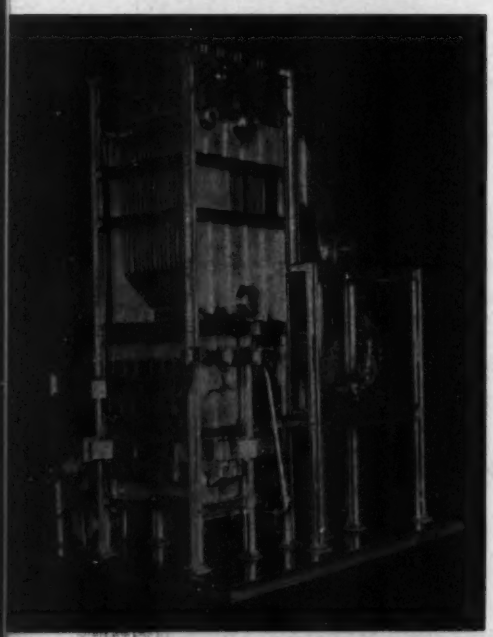
WESTERN PRECIPITATION HOLDS YEARLY MEETING

At the recent meeting held by the Western Precipitation Corporation in Los Angeles, all branch managers, sales managers, and engineers were given instructions in the new developments of the engineering and research departments.

Five full days were devoted to systematic programs that covered every phase of engineering and selling technique in the field of dust, fog, fume, and mist control. The new turbulaire dispersion dryer was demonstrated in the laboratory and inspection trips were made to plants in which recent installations were in actual operation. There was also a demonstration of the new 9 VF multiclone, made entirely of 3/16-in. steel and cast iron, to show the recovery of fly ash in powdered fuel power plants.

The technical discussions were presided over by Evald Anderson and F. H. Viets. Richard O'Mara led those pertaining to sales, and Walter Schmidt, president of the company, acted as chairman.

Below—Model of chemical recovery unit for sulphate mills exhibited at annual meeting of TAPPI by Combustion Engineering Co.



Western Precipitation Corporation's group of branch managers and engineers who attended a five-day meeting at Los Angeles.

▶▶▶ TWO NEW LINES OF lubricating greases for ball bearing and roller bearings have been developed by the Gulf Refining Company, Pittsburgh, Pennsylvania. One, designated gulf antifriction grease, is recommended for heavy duty service. The other, gulf precision grease, is recommended for lighter duty and higher speeds. Both of these lubricants have a high melting point and are specially prepared for greatest resistance to oxidation and separation. Both lubricating greases are approved by the National Lubricating Grease Institute.

◆

▶▶▶ THE OFFICES, PLANT, AND LABORATORIES of the Glyco Products Company, New York City, are being moved to a new building in Brooklyn with greatly improved shipping means, such as railroad sidings, water freight facilities, etc. A considerable amount of new and modern equipment has been installed by the company to increase and improve production facilities.

◆

TITANIUM DIV. NEGOTIATING WITH MacINTYRE LEAD

The Titanium Division of the National Lead Company is negotiating with the MacIntyre Iron Company for the purchase of property held by the latter company in Essex County, New York. This property contains extensive deposits of iron ore which is rich in titanium, in fact, this is where the original idea was started for the development of "titanox" pigments.

In the event that these negotiations are completed, the Titanium Division will open up the MacIntyre deposits as a source of ilmenite for the continued operation of its two plants at St. Louis, Missouri, and Sayreville, New Jersey, where titanium pigments are manufactured.

The deposits in this property consist of the titanium ore known as ilmenite with a by-product portion of magnetite (ferrous and ferric oxides). The iron content is very low in phosphorous, a quality which makes it valuable for the production of certain types of steel.

◆

▶▶▶ THE FIRM OF A. Eugene Michel and Staff, Incorporated, New York City, announces that at a recent election William A. Cather was named vice president of the organization, and that the firm name has been changed to Michel-Cather, Incorporated.

◆

ARMCO TO BUILD STEEL MILL IN HOUSTON, TEXAS

The American Rolling Mill Company, Middletown, Ohio, has completed the plans for the construction of a $15,000,000 steel mill to be located in Houston, Texas. William S. Knudsen of the national defense commission announced that the plant would be financed by the Reconstruction Finance Company, in co-operation with the company, and would be a permanent industry.

The officials of the R. F. C. reported that a loan had been approved for $12,000,000 for the plant to be located about ten miles below Houston and the company will use between $2,000,000 and $5,000,000 of its own money. The mill will have a capacity of 200,000 ingot tons annually.

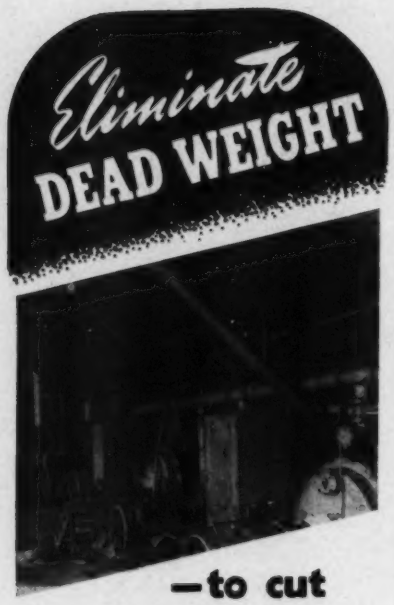
◆

▶▶▶ A NEW PIPE CUTTING service that will furnish pipe cut to measure, with ends shaped, fitted, and bevelled and all ready for welding is announced by the Chicago Pipe Company, Chicago. All the cutting is done with exclusive cutting machines that produce smooth, clean, perfectly fitting intersections of any design.

A bright spot
in any calender

PERKINS

B. F. PERKINS & SON, INC.
ENGINEERS AND MANUFACTURERS
HOLYOKE • • • MASSACHUSETTS



—to cut your pipe costs

IN pipe, as in almost everything else, weight that doesn't contribute to strength is worse than useless—it's dead weight, and a burden.

Compared with Taylor Spiral Pipe conventional wrought pipe is loaded with dead weight. Taylor Spiral Pipe is light wall pipe, yet its reinforcing seam adds an extra measure of strength that will withstand bursting, collapsing and other stresses as well as wrought pipe of much greater weight.

Eliminating dead weight makes Taylor Spiral Pipe much easier to handle and less expensive to ship—cuts installed cost almost in half.

• Available in a complete range of sizes, lengths and gauges—with joints and special coatings for all services. Taylor Special Fabricating Service can solve your most intricate piping layout.

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WRITE FOR CATALOG 404

TAYLOR *Spiral* PIPE

SAFETY

▶▶▶ FOLLOWING IS A RULE shown on one of the posters recently advertised in the *National Safety News*. "Block every bottom roll. Then when the front roll is taken away, the rest will not spread and cause the pile to come down."

◆

▶▶▶ A FATAL ACCIDENT occurred in the Howard Smith Paper Mill, Cornwall, Ontario, recently, when Harvey Lalonde, 21 year old employee was caught in the rolls. No explanation to the accident could be given, as there were no eye witnesses.

◆

FIRE PREVENTION AND NAT'L DEFENSE

The main aim of the National Board of Fire Underwriters for the year of 1941 will be to conduct an intensive campaign to stimulate recognition of the need for fire prevention as a contribution to the National Defense Program. The plan will be outlined at the 75th anniversary of the Board to be held in the Waldorf-Astoria Hotel, New York, on May 27 to 28. There will also be discussed at this meeting the part that the National Board has played in American progress.

Fire losses in industries working on defense orders as well as in Army cantonments and Naval shore establishments would delay the preparedness plans as well as increase the cost. This program of the National Board of Fire Underwriters will endeavor to make every citizen realize his duty to do all possible to control and reduce fire losses.

◆

▶▶▶ THE PRELIMINARY 1941 EDITION of Accident Facts, the National Safety Council's annual statistical yearbook has just been released. The information in this publication deals with the number and kind of accidents that have occurred in recent years and the causes. Graphs, charts, and per cents are used to make this changing picture a vivid and accurate presentation of the facts.

The Paper Industry Safety Contest

July 1, 1940 to June 30, 1941

Out of 188 mills reporting for January, 18 have perfect record

PERFECT SCORES
Division I—Pulp and Paper Mills

PARTICIPANT	MILL	LOCATION
GROUP A		
GROUP B		
P. H. Glatfelter Company	Spring Grove	Pennsylvania
GROUP C		
Strathmore Paper Company	West Springfield	Massachusetts
Price Brothers & Co., Ltd.	Jonquiere, P. Q.	Canada
Strathmore Paper Company	Woronoco	Massachusetts
Rising Paper Company	Housatonic	Massachusetts
GROUP D		
The Mead Corporation	The Harriman Co.	Harriman, Tenn.
Bird and Son, Inc.	Phillipsdale	Rhode Island
American Writing Paper Corp.	Parsons Division	Holyoke, Mass.
American Asphalt Roof Corp.	East St. Louis	Illinois
United States Gypsum Co.	N. Kansas City	Missouri
Spaulding Fibre Co., Inc.	Milton	New Hampshire
The Mead Corporation	Nashville	Tennessee
Central Fibre Products Co.	Vincennes	Indiana
Alton Box Board Company	Carlyle	Illinois
Spaulding Fibre Co., Inc.	Hayes	New Hampshire
Division II—Paper and Board Re-Manufacturing		
Bird and Son, Inc.	Chicago	Illinois
Bird and Son, Inc.	Shreveport	Louisiana
Bay West Paper Co.	Green Bay	Wisconsin

SUMMARY OF CONTEST EXPERIENCE

Division	Man-Hours Worked	Reportable Injuries	Frequency Rate 1940-41 (7 mos.)	Comparison of Rates with 7 mos. of 1940
All Divisions	107,487,447	1,506	14.03	−2%
Paper & Pulp	97,295,023	1,365	14.03	−3%
Group A	64,794,718	778	12.01	0
Group B	17,200,057	276	16.05	−3%
Group C	10,087,699	196	19.43	−6%
Group D	5,212,549	115	22.06	−2%
Paper & Board Re-Manufacturing	10,192,424	143	14.03	+9%

You Can Handle 'em Better

WITH SKID-EM-ON'S

Left—The Famous Skid-Em-On model PS side loader for mills with cramped storage facilities. Rolls are hauled endwise.

Investigate Skid-Em-On's. You'll be surprised at the savings these paper roll trucks can effect. One man can perform all operations with Skid-Em-On's—there's no complicated parts—no fancy gadgets. Skid-Em-On trucks are in use in paper mills throughout the United States and Canada. We make one for your every need.

Below — Skid-Em-On end loader with automatic device which lifts and locks the skid when roll comes to loaded position.

CENTRAL MACHINE WORKS

437 S. Senate Ave. Indianapolis, Ind.

BEATER TACKLE HEADQUARTERS

For long time, high efficiency service, specify SWW beater tackle. Made of finest selected alloy steels. Designed for extra stock preparation capacity. Built and guaranteed by a company with the experience and skill necessary to handle any beater bar or bed plate requirement.

A complete line is available . . . standard beater bars, special bars forged out of carbon steel, alloy steel, stainless or bronze. Abrasive-steel combination bed plates, diamond pattern, standard elbow pattern, special plates built to your own specifications.

Also paper trimming and chipper knives, Dayton roll bar grinders, and Dayton abrasive wheels.

For full details, write *Simonds Worden White Company, Dayton, Ohio.*

SIMONDS WORDEN WHITE CO.

SWWCo OFFICE DAYTON, OHIO SWWCo

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NAMES *in the* NEWS

Personals

INSTITUTE APPOINTS JAS. d'A CLARK AS RESEARCH ASSOCIATE

James d'A Clark has recently been appointed as Research Associate, as of February 17, 1941, it was announced by Westbrooke Steele, Executive Director of the Institute of Paper Chemistry. Mr. Clark has been carrying on graduate work at the Institute for the past two years and has just received his Doctor of Philosophy degree which will be presented by Lawrence

James d'A Clark

College at its annual commencement in June. The subject of Mr. Clark's thesis is "Measurement of the Specific Surface Area and Some Other Properties of Pulps."

Mr. Clark has earned himself a place in the industry for his work on paper and pulp and is well known for his many publications on the subject. He was born in Scotland and spent his youth in South Africa. He has studied at Rhodes College, the University of Cape Town, University College in London, and Battersea Polytechnic which is also in London. After passing the examination of the City and Guilds of London in the chemistry of paper-making and paper-mill engineering, he served his apprenticeship with Masson and Scott, paper mill engineers. When the new Kemsley mill was being built he was appointed assistant to the chief electrical engineer of Edward Lloyd, Ltd., Sittengbourne, England.

In a competitive examination given to the graduates of the University of London, he won the Sir Robert Blair Fellowship in Applied Technology and, as a result, spent 15 months in Canada and the United States, studying the manufacture of pulp and paper, publishing the report of his trip in the Technical Section of the Paper Makers' Association of Great Britain and Ireland in 1927.

In 1930, he came to the United States and for two years was development engineer of the Mead Corporation, being associated with all the laboratory work and technical development of the corporation. From 1932 until he entered the Institute he was with the Scott Paper Company.

Mr. Clark has to his credit several patents on the manufacture of boards, printing paper, and tissue products, and on the moisture testing of materials. His intense interest in pulp and paper testing has been expressed by the way he has applied his wide engineering background to this field. While in England he served as Secretary of the Pulp Evaluation Committee of the Paper Makers' Association, designed the sheet-making equipment which is now standard in Great Britain, Canada, and the United States and, with the assistance of others, wrote the standard method. He has also designed a kollergang (a precision laboratory beater to work in conjunction with the standard sheet machine), a laboratory refiner, a stretch tester, a moisture meter, the multiple folding endurance tester, a precision white water sampler and meter, a pulp classifier, and the Clark softness and stiffness tester.

In addition to being a member of TAPPI (Chairman of the Delaware Valley Section in 1938 and 1939), Mr. Clark is also a member of the Technical Section of the Paper Makers' Association of Great Britain and Ireland, the Canadian Technical Section, and the Institution of Mechanical Engineers of London.

◆

▶▶▶ A recent appointment named *Addison C. Armstrong* as manager of the Ordinance Division of the Worthington Pump and Machinery Corporation at Holyoke, Massachusetts. He will be directly in charge of the production of ordinance equipment at that plant. Mr. Armstrong was formerly affiliated with the Truscon Steel Company as a departmental manager.

I. ZELLERBACH CELEBRATES HIS 75TH BIRTHDAY

At a recent luncheon given by friends and relatives at the Stock Exchange Club, Isadore Zellerbach, chairman of the executive committee of the Crown Zellerbach Corporation, celebrated his 75th birthday. Later during the same day he was surprised by another party given him by 275 of his employees in the San Francisco office who presented him with a huge birthday cake, which they helped him eat.

Mr. Zellerbach's 54 years in business with his corporation brought him a special award of the National Asso-

Isadore Zellerbach

ciation of Manufacturers, but he believes that awards are the least compensation for effort in business and what is really important is to have a keen interest in the business for itself. "Interest in work is the most important. That's what saves it from being just a chore," are Mr. Zellerbach's own words describing how he feels about his work.

◆

▶▶▶ The election of *Victor J. McCormick*, Green Bay attorney, to the board of directors of Hoberg Paper Mills, Inc., has been announced. He replaces Dr. J. R. Minahan, Green Bay physician and member of the board, who passed away recently. Mr. McCormick was the only new member named at the company's recent stockholders' meeting. The board also renamed incumbent officers, J. M. Conway remaining as president and gen-

WANTED—Experienced designers and draftsmen for layout of new sulphate and kraft mill, Middle West location. Reply must state fully ... salary expected.

WANTED—Young ... practical ... and res... in pul... 4785. ... preferen... experience ... labor ... y hav... or de... ry in ... wante... witho... hes ... ste... s a... 00 ... ula... siz... us... ng... h ... sk... U... of ... ymon ... tthet, Bosto... Mill WANTED—Two sup... ... and similar grades, groundwood papers...

JOB WANTED

cleaning save-alls
the thorough Oakite way

Undoubtedly you have a save-all cleaning job . . . and you are looking for a better, faster, more thorough way to do it. If so . . . your search is over! For as many mills will tell you, dependable Oakite cleaning will do that job to perfection!

Yes . . . speedy, penetrating action of the recommended Oakite material removes clogging deposits of dirt, sizing, rosin, starch. Cleans save-alls with a thoroughness and an economy that will delight you!

Helpful, money-saving data on this and 26 other mill maintenance jobs, are yours for the asking in FREE 20-page booklet. Write for YOUR COPY today!

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OAKITE Certified CLEANING

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IN STOCK . . . IMMEDIATE SHIPMENT

When you need steel of any kind, a single bar or a carload, order from the nearest Ryerson plant. Write for Stock List.

Bars, Shapes	Shafting	Rivets, Bolts	Alloy Steel
Structurals	Tubing	Welding Rods	Tool Steel
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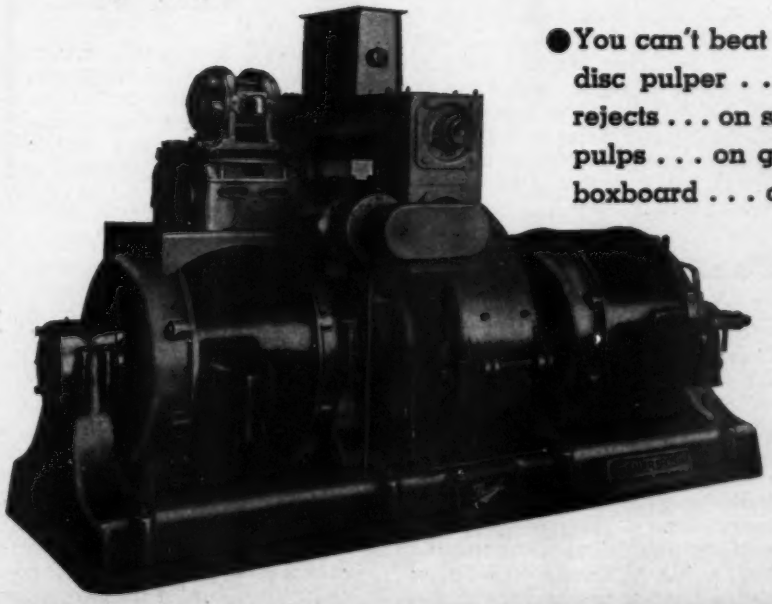
Sheets—Strip	Reinforcing	Babbit, Solder	Safety Tread

Ryertex water-lubricated Bearings give cleaner, more uniform products . . . reduced power consumption . . . longer bearing life . . . and eliminate lubrication. These are some advantages of Ryertex installations on Jordans, Beaters, Press and Couch Rolls, grinders, Calenders, etc. Write for complete information.

Joseph T. Ryerson & Son, Inc., Chicago, Milwaukee, St. Louis, Detroit, Cincinnati, Cleveland, Buffalo, Boston, Philadelphia, Jersey City.

Pulp your stock THE BAUER WAY



●You can't beat the action of the Bauer double-disc pulper . . . on kraft knotter and screen rejects . . . on semi-chemical and semi-sulphite pulps . . . on ground wood screenings . . . on boxboard . . . on container.

Plenty of rolling and squeezing . . . but very little cutting. Hence, greater freeness and better formation with resulting higher Mullen and tear.

Two sizes . . . 36" and 24" diameter discs. Full range of plate patterns. Write today for details.

THE BAUER BROS. CO. SPRINGFIELD, OHIO

eral manager. At a meeting the same day of the Hudson Sharp Machine Company, Green Bay, *H. G. Wintgens,* vice president and assistant general manager of Hoberg Mills, was chosen a director to fill the vacancy left by the late Dr. Minahan. All the other directors and officers were re-elected.

◆

WESTINGHOUSE ENGINEER GIVEN AWARD FOR 1940

A member of the Westinghouse engineering staff in Pittsburgh, Jesse E. Hobson, has just received the Eta Kappa Nu award as the country's outstanding young electrical engineer for the year of 1940. Dr. Hobson was presented with the award at the annual dinner given in conjunction with the AIEE winter convention in Philadelphia.

The Eta Kappa Nu is an honorary fraternal society of electrical engineers and is affiliated with the AIEE. Annually the group decides what person in the electrical engineering field has made the most outstanding developments and the most progress.

Jesse E. Hobson

Dr. Hobson is 29 years old and has been with Westinghouse for three years. He is now in charge of application work on electric power equipment for the Northwest District, and, apart from his regular duties, he has published several technical papers on power systems and also organized lecture courses for the company.

◆

▶▶▶ The former president of the Glazed Paper Company, Springfield, Massachusetts, *L. F. Supple,* has joined the Reynolds Metals Company as head of the Unifoil Divisions. Mr. Supple for thirteen years was affiliated with Whiting, Patterson & Company, Philadelphia, for a time being general manager and treasurer of that company. For a number of years Mr. Supple has been prominent in the converting field and in the handling of fancy and decorative papers for packaging. He is well known in the business for his activities in the National Paper Trade Association.

◆

▶▶▶ The Canadian Lumbermen's Association elected *J. G. Fleck* president of the Association for the coming year. Mr. Fleck is the vice president and managing director of J. R. Booth, Ltd., Ottawa. E. W. Ross was chosen first vice president and S. C. Thompson, Canadian International Paper Company, assumed the post of second vice president. Mr. Thompson will serve on the board of directors as a representative of Brigadier-General J. B. White, who is now on active service with the Canadian Forestry Corps.

◆

▶▶▶ *William Clarke Mason,* senior partner of the law firm of Morgan, Lewis & Bockius, has been elected a director of the Scott Paper Company in Chester, Pennsylvania, to fill the vacancy made by the late Clement B. Wood, who was also a partner of Morgan, Lewis & Bockius. Mr. Mason is also chancellor of the Philadelphia Bar Association and a director of the Philadelphia National Bank.

◆

▶▶▶ The former assistant manager of the Oxford Paper Company, *Richard C. Alden,* has been named assistant superintendent of the coating division at the Watervliet Paper Company, Watervliet, Michigan. Mr. Alden is to take the bulk of the responsibility of the coating division so that Superintendent Elbert G. Milham may devote the major portion of his time to research work.

◆

CHAIN BELT CO. ELECTS OFFICERS

At the annual election held by the Chain Belt Company, Milwaukee, J. C. Merwin was elected president of the company. Mr. Merwin is to succeed the late C. R. Messinger who passed away recently. Other officers elected at the meeting were G. M. Dyke, treasurer and A. F. Kessler, comptroller.

Mr. Merwin joined the company in 1917 and in 1923 was elected director and became vice president in 1924. In 1939 he was elected treasurer and has served as vice president and treasurer since that time.

Mr. Dyke has been connected with Chain Belt since 1923. In 1926, when the company acquired the Stearns Conveyor Company of Cleveland, he became vice president of the latter company, returning to Milwaukee when the operations of the Stearns Company moved there, and becoming assistant treasurer of the Chain Belt Company.

◆

▶▶▶ The former manager of the technical service department of the Pittsburgh Plate Glass Company, *Dr. A. E. Boss,* has been named manager of pigment sales of the Columbia Chemical Division of the company. Dr. Boss will devote his time to the further development of Calcene sales

A. E. Boss

and the establishment of a new program in the interest of Silene, a calcium silicate pigment. He is also a member of the American Chemical Society, Rubber Division, and has served as vice chairman, chairman, and councillor of the Akron Section of this Society.

◆

▶▶▶ A new industrial department office of Johns-Manville has been established in Atlanta, Georgia, with *Thomas J. Roberts* in charge. Mr. Roberts was formerly assistant to T. K. Mial, J-M vice president.

◆

S. L. de CARTERET IS APPOINTED TO NAT. DEFENSE POST

At the request of the Federal Government, S. L. de Carteret, vice president of Canadian International Paper Company, has accepted the post of Deputy Minister of National Defense for the Air Corps, to succeed James S.

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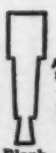

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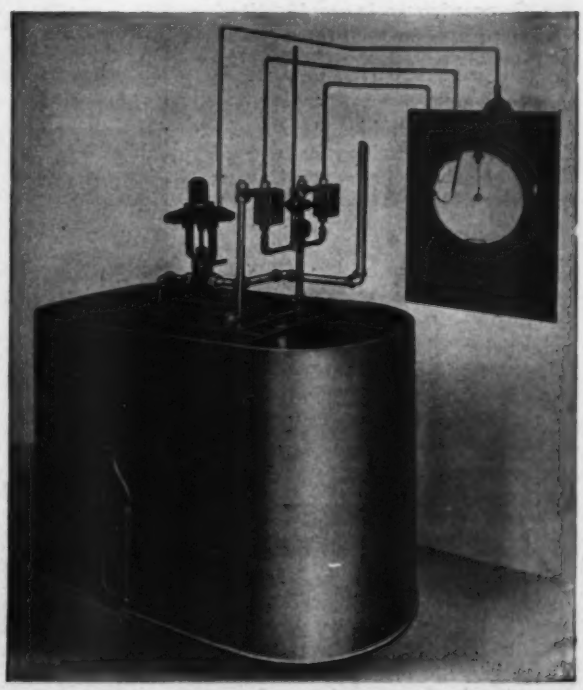

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Duncan, who left the position open when he accepted the presidency of the Massey-Harris Company. Mr. de Carteret, who is also general manager of the Canadian International Paper Company, will serve in his present official capacity as long as the affairs of his company permit.

Mr. de Carteret was born in New Zealand and came to Canada in 1908. He has been successively employed as forestry engineer at the Riordon Paper Company, woods manager for the Brown Corporation, Canadian manager of the Hammermill Paper Company, consulting engineer and statistician for the New Print Committee and general manager of the Brompton Pulp and Paper Company.

◆

▶▶▶ On March 1, *R. H. Stevens* became associated with the National Container Corporation, Jacksonville, Florida. Mr. Stevens was formerly chief chemist with the Bogalusa Paper Company, Bogalusa, Louisiana, and more recently was connected with the Herty Laboratory, Savannah, Georgia.

◆

▶▶▶ The new manager in the Philadelphia Plant of the Joseph T. Ryerson Corporation is *James M. Mead.* Mr. Mead has been with the organization for 22 years, starting in the New Jersey territory and later being transferred from Newark to Philadelphia. He is filling the position left open by Arthur Allshul, former manager of the plant, who retired after 42 years of service with the company.

◆

▶▶▶ The recently elected president of the Canadian Forestry Association is *G. Percy Burchill,* South Nelson industrialist, who is succeeding A. A. Schoon, president of the Ontario Paper Company, who had been president of the Association for the past two years.

◆

HOLDS HIS FIRST JOB FOR 58 YEARS

To have held his first and only job for 58 years is the distinction which Enos D. Smith, Holyoke, Massachusetts, enjoyed when he recently celebrated his 80th birthday. Mr. Smith is employed as foreman of the rag room of the Whiting Paper Company, Holyoke, having joined the concern 58 years ago.

As an employee of the company, Mr. Smith has served under three generations of the Whiting family: the late William Whiting, who founded the concern in 1865; his son, the late William F. Whiting, who served as Secretary of Commerce in the Coolidge

Enos D. Smith

administration, and his sons, William, Edward, and Fairfield, who are the present officials.

◆

▶▶▶ The Reliance Electric & Engineering Company recently appointed *Roscoe H. Smith* as manager of applied engineering. Mr. Smith attended the United States Naval Academy and the Massachusetts Institute of Technology. He graduated from the latter in 1923

Roscoe H. Smith

with the degree of S. B. in electromechanical engineering, and immediately joined Reliance in Cleveland. Later he was assigned to sales offices in Chicago and then in Boston, returning to Cleveland in 1932, to devote all of his time to application engineering for the company.

Necrology

LEWIS E. SAUNDERS

The vice president of Norton Company, Worcester, Massachusetts, and a pioneer in the development of electric furnace abrasives, Lewis E. Saunders, passed away recently at the age of 67. Before joining Norton Company he was associated with Charles B. Jacobs, Ampere, New Jersey. Mr. Saunders had been vice president of Norton Company since 1937, and a director of the company since 1921. He was also formerly manager of the company's abrasive plants and research laboratories. Since January of this year he had given up active duties and had been serving in the capacity of consultant.

◆

▶▶▶ *George B. Witter,* a former secretary of the Rice Barton Corporation, Worcester, Massachusetts, passed away recently at the age of 85. Mr. Witter was employed by the Barton Company for 25 years and retired in 1904. Surviving are his sister and nephew.

◆

ASA F. TUTTLE

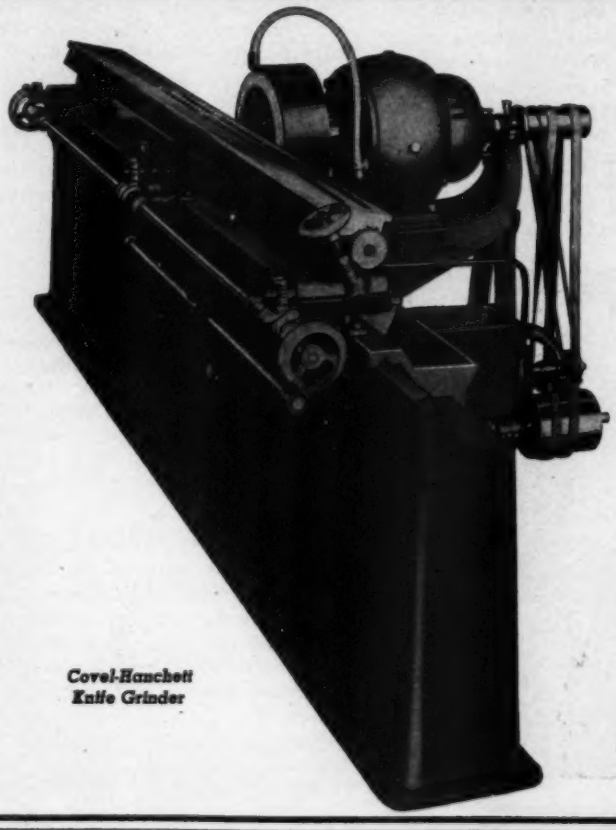
Asa F. Tuttle, president and founder of the Tuttle Press Company, passed away recently at the age of 77 while on a winter vacation in Los Angeles. Mr. Tuttle was formerly connected with the printing industry in Chicago and Elgin. In 1898 he founded the tissue and crepe business and shortly after he developed a press for printing on crepe. Mr. Tuttle then moved to Appleton, Wisconsin, so that he might be near the source of the raw materials that he used in his business. The company which he founded has become a world figure and has enlarged its line to include innumerable items in the paper specialty field. Mr. Tuttle had remained active in the business.

◆

▶▶▶ *Edward James Graham,* woods manager for several leading Canadian lumber companies and at the time of his retirement owner of his own lumbering firm, the Pickerel Lumber Company, passed away recently at the age of 73. Mr. Graham is survived by his widow, two daughters, and one son.

◆

▶▶▶ Former resident of Vancouver, British Columbia, *Percy Sandwell,* passed away recently in Australia. Mr. Sandwell was for many years resident engineer and later assistant resident manager of the Powell River Company, Powell River. He left British Columbia about three years ago to



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WOOD

plan and supervise construction of a newsprint mill near Hobart, Tasmania, and was still connected with this venture when he passed away. He is survived by his widow, a daughter, and son.

◆

▶▶▶ The treasurer of the American Pad and Paper Company, Holyoke, Massachusetts, *George W. Brainerd,* passed away recently at the age of 82. Mr. Brainerd has been with this company since 1904 and before was employed by the Chemical Paper Company, Holyoke. He was active in the civic and social affairs of Holyoke and was a director of the National Stationers' and Publishers' Board of Trade.

◆

▶▶▶ *E. Ellsworth Lincoln,* passed away suddenly at the age of 79, after being stricken while working in the paper mill of the Dighton Manufacturing Company, North Dighton, Massachusetts. Mr. Lincoln was superintendent and part owner of the company for 50 years. Mr. Lincoln was a descendant of Lorenzo Lincoln, inheritor of the Westville Paper Mill of John West, who in turn is said to be the first paper mill owner of colonial times. Surviving are his brother and sister.

ALBERT H. STANDLEY

Albert H. Standley, president of the Downingtown Mfg. Co., died on February tenth. His health had been failing for the past two years, but he continued to take an active interest in the business up until about two months before his death.

He was born 68 years ago in Watertown, N. Y., and began his career as a machinist with the old Watertown Steam Engine Co. A few years later, he went with the Bagley & Sewall Co. of Watertown. The years he spent in their Engineering Dept. formed a foundation for his life work in building paper mill machinery.

Albert H. Standley

In 1906 he came to the Downingtown Mfg. Co. as Chief Engineer. He was elected vice president and shop superintendent in 1909 and in 1932 became president.

He was a Life Member of the American Society of Mechanical Engineers, a Trustee of the Central Presbyterian Church of Downingtown, and a member of the Rotary Club. He took an active interest in all worth while community projects and contributed generously to charities. He is survived by his widow and four brothers.

◆

▶▶▶ *William I. Sivitz,* manager of the Pittsburgh office of the Duriron Company, passed away recently after being with the company for 11 years. Mr. Sivitz was the newly elected president of the Pittsburgh chapter of the American Institute of Chemical Engineers.

◆

▶▶▶ After 28 years with the Falk Company, Milwaukee, Wisconsin, *Edward P. Connell,* secretary-treasurer and general manager of the corporation, passed away recently at the age of 65. Mr. Connell started his career with the company as an accountant in 1913, and later served as purchasing agent and comptroller. He was appointed treasurer of the firm in 1939, and was named general manager in 1940. He was also a director of the company.

◆

▶▶▶ The president of two companies, the Taylor-Logan and the New York-New England Company, *John F. Adie,* Holyoke, Massachusetts, passed away recently at the age of 71. Mr. Adie was a native of Scotland and began his paper making career in the United States in 1916 with James Taylor and Henry Taylor. He is survived by his widow, son, and daughter.

◆

▶▶▶ Secretary of the Rhinelander Paper Company, *Paul Browne,* passed away recently at the age of 82. Mr. Browne practiced law in Waupaca and Rhinelander, Wisconsin, until 1891, when he was elected municipal judge of Oneida county, a post he held for 16 years. He became secretary of the Rhinelander Paper Company at its organization in 1930, holding the position until he passed away. Surviving are his widow, a daughter and a son.

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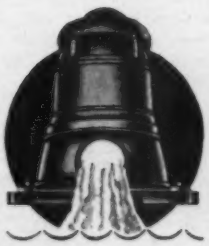

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Convention Papers . . . Abridged

Process Factors in the Commercial Beating of Wood Pulp

HOWARD GAETZ, Production Manager
Midvale Paper Board Co., Inc.

The conventional system of stock preparation, as designed in virtually all mills making printing grades of paper board, is unable to produce a commercial degree of uniformity under present day trade conditions. The reason can be briefly stated. This process is essentially 2-stage beating, in which varying degrees of all three main beating functions are performed in each stage, under conditions usually lacking in proper capacity and always lacking in necessary control.

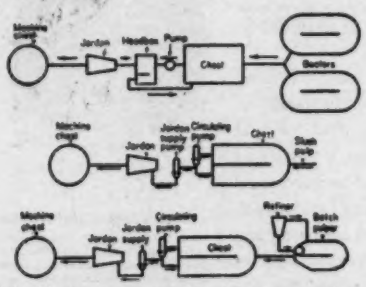

Fig. 1—Top: Conventional process. Center: Single pass jordan beater process, continuously furnished. Bottom: Single pass jordan beater process, batch furnished.

Let us follow a typical operation of this system preparing patent coated top-liner. A usual top-liner layout consists of two beaters, one dump chest, pump, headbox and overflow layout, one jordan, and the machine chest, as shown in Figure 1 (upper). Assume that the machine is running out the machine chest on an order of bleached manila. The system has been washed out up to the machine chest, one beater of the new stock has been dumped and is being refurnished, the other is beating, and the jordan is not yet on the line. The first order in the series for white patent coated is for 15 tons, and the machine makes 4 tons per hour.

Now the machine chest is ready for the new stock. The jordan is started, and is supplied at a rate about equal to the machine demand; stock from the jordan is running to the machine chest, and the machine makes "change-board" for 15 to 30 minutes. Then the change is completed and the machine goes on the order. The jordan feed is now increased to probably 1.5 times the machine demand, and the plug is set up. The purpose is to bring up the machine chest. This is change number 1 in operating conditions. The beaten stock characteristics change with it. Printing quality and other quality factors vary with it.

These new conditions are maintained for roughly 2 hours, at which time there are 2000 pounds of beaten stock in the machine chest, and the machine has made half the order. The jordan feed is now reduced to equal the machine demand, and the plug is backed off slightly. Again two variables in procedure are changed, and a new set of stock characteristics flows to the machine chest. The stock going to the machine will now vary progressively for a period of time, depending upon the ratio of chest feed and discharge to chest capacity and upon the thoroughness of mixing by the chest agitator. Two hours of this and our order is made with a 10 per cent over-run, and we have still not reached equilibrium conditions in the machine chest.

Even upon a long run, uniformity of stock characteristics yielded by this process is jeopardized by these facts: (1) No two beaters beat just alike; no two batches from the same beater are dropped just alike. (2) The second (or jordan refining) stage of this process is tied up to the machine, so that changes in speed or machine demand make it necessary to vary the jordan feed. At the feed rates found in this procedure, the jordan is operating under conditions of maximum sensitivity to feed variations and plug setting. (3) At the range of feeds encountered in this process, the jordan is operating under conditions of maximum sensitivity to small variations in stock consistency.

Various modifications of this process exist. Two machine chests for liner stock represent some improvement in both process and operating economy. Feeding slushed stock from a beater or pulper to the beaters increases capacity. Placing a "tickler" jordan between machine headbox and screens further aggravates the control factor. High-speed and multi-bedplate beaters increase capacity; but the process is still a compromise.

Figure 1 (center) shows a system adopted to some extent for sulphate wrapping, bag, and liner papers. It can be defined as a 1-stage full-continuous single-pass jordan-beating process. Slushed stock, either from the adjoining pulp mill, or from a continuous breaker system is fed continuously to a dump chest, withdrawn by pump to the jordans, either direct or by way of a headbox, through the jordans, sometimes connected in series and sometimes in parallel, and discharged to the machine chest. The advantages of this process are small floor space requirements, low labor cost per ton, and 1-stage continuous beating.

The disadvantages are, that here again the rate of stock flow through the jordans is governed by machine demand, limiting control of beating to the one variable, jordan load. Under the usual conditions, jordans used in this way do not accomplish sufficient wet-beating or hydration to constitute good beating practice. Freeness drop is largely due to shortening of the stock. Capital and power costs per ton are high.

One interesting modification of this process has found some use in paperboard mills shown in (Figure 1, bottom). This precedes the dump chest with a batch pulper to which is attached a recirculating refiner. Operation of this system is batch from pulper to chest, and continuous through the jordans to the machine chest. In this process the performance of the refiner, in the degree of hydration it accomplishes, is of much importance. My experience with this is limited to two installations, and in each case the refiner drew 150 hp. and did little that could be found except to assist somewhat the breaking action of the pulper. In any case, considered process-wise, this flow-sheet exhibits the same ills of any 2-stage beating process; ills arising from lack of specific control, and from what has been found to be improper jordan usage.

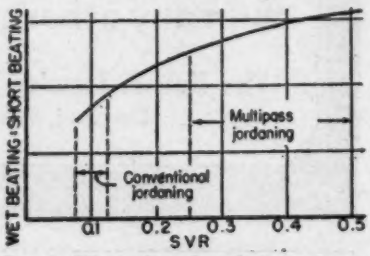

Fig. 3—Effect of stock velocity ratio on stock characteristics.

Studies, under operating conditions, of the newer methods of recirculated, or multi-pass jordan-beating, show this field to be the most promising development in paper stock preparation that has come forward to date.

Many processes incorporate to some degree the principle of recirculated jordan-beating, but few mills are so designed as to depend entirely on it for their beating.

The technical data that have been gathered pertaining to jordan-beating by the recirculation process leave many gaps if considered from the point of view of pure research. As a technical service to commercial operation, these data measure various values only under successful commercial operating conditions, and leave no room for reservations as to practical application. They establish a few of the more pertinent relation-

Most of the papers presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, held in New York City, February 17-20, 1941, have been abridged by our editorial staff, and will be published in this section from month to month until completed. This is the first installment of these abridgments.

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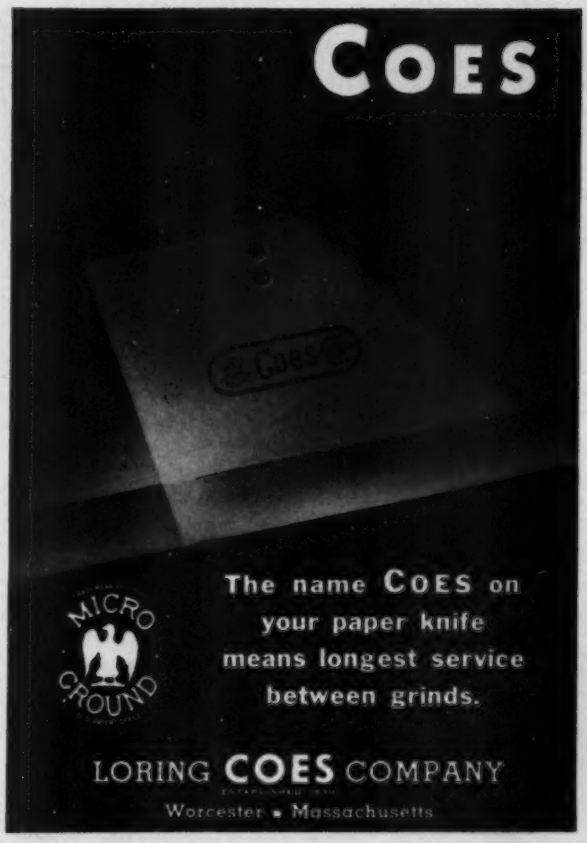

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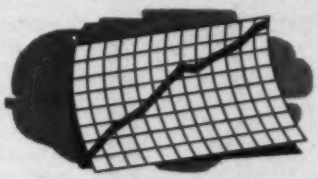

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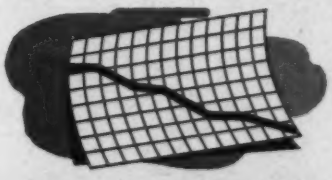

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ships between operating variables and the resulting manufacturing efficiency.

The commercial use of this method of jordaning showed beating efficiencies which could not be explained by dwell time of a unit volume of stock in the bar contact regions of the jordan. The only possible explanation was that the significant factor was rate of stock flow through the jordan. It was necessary to have a "yard-stick," since mere stock velocity parallel to the bars would not take into consideration the wide variety of tackle and plug speeds which exists.

The measuring stick established was the calculated ratio of the linear velocity component parallel to the long dimension, to the linear velocity component perpendicular to this dimension, both at the center or mean diameter of the jordan. This is most easily designated as "stock velocity rates," abbreviated S.V.R. and expressed as "ratio V_1/V_p, where V_1 is the calculated longitudinal velocity corresponding to the gallonage throughout, and V_p is the calculated peripheral velocity imparted to the stock by the rotational speed of the plug, both at the mean jordan diameter.

This stock velocity ratio is raised, in any given jordan, by increasing the gallonage put through the jordan. It gives a basis for comparison between different jordans.

In most of the paper made, wet-beating is more desirable than short-beating, though in some grades this is reversed. *In liner stocks for printing paperboards, the extent to which wet-beating can be accomplished determines the printing and strength qualities obtained. The extent to which the ratio of wet-beating to short-beating done can be maintained uniformly determines the degree of uniformity of all quality factors, and to a considerable degree, the efficiency of the paper machine operation.*

Both of these beating effects accomplish freeness drop, and any control mechanism which fails to evaluate the ratio in which these two factors contribute to the over-all freeness drop fails also as a control mechanism.

Fiber length classification [Brainerd, F. W., "New Fiber classifier and its application," *Tech. Assoc. Papers* 22:205-212 (June, 1939)] has developed to the degree that it is now ready for adoption as a control mechanism, and as such promises to be of great value in proper assessment of beaten stock characteristics.

Optical fiber-length measurement, wetness tests of one form and another, and tearing strength measurement on standard hand-sheets all give fair indications of the type of beating done by any procedure and equipment.

These procedures were followed to determine the effects upon beaten stock characteristics resulting under commercial conditions, on all-sulphate furnishes, from varying the stock velocity ratio in recirculated jordan-beating processes. The ordinate in Figure 3 represents the ratio of wet-beating to short-beating resulting, at finished freenesses, under various conditions of gallonage throughout of the jordans. (This graph can be considered of only qualitative value.)

The slope of the curve in the region designated "range of conventional jordaning" shows the sensitivity of the stock to small changes in jordan feed. The ordinate in this range shows the relatively low degree of wet-beating, and the relatively high degree of short-beating done at these jordan feed rates.

Following the curve into the range of multipass jordaning we find the stock characteristics ratio less sensitive to changes in jordan feed; approaching an asymptote at which no shortening has been done and freeness drop is entirely due to wet-beating; and we establish a stock velocity ratio of 0.5 above which the slight increase in wet-beating has no commercial value and the additional pumping horsepower is wasted.

We see in these graphs the means of designing our beating process so as to accomplish any set of beaten, stock characteristics required by product specifications; to be able to vary these at will between makes of different grades; to do beating much more efficiently than ever before; and to embody more specific and less sensitive beating control than ever before.

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Standardization of business papers was begun in 1917 after the Western Electric Company, in performing its function of establishing centralized supply arrangements whenever these could be carried out to the best interest of the service, had entered into contracts to centralize the purchasing of the bulk of printed business papers for two of the associated companies. This procedure was later extended to other companies and offered significant economies over the general practice of dealing with a number of supply sources and of handling each printed form as an individual transaction.

The standard grades were established by making a systematic survey of all of the many plain papers and hundreds of printed forms used by the associated companies. These were classified as to furnish, finish, strength, color, and other characteristics. Based on this survey it was determined that 13 grades would suffice to cover the requirements and these were substituted for the papers then in use. The original list of 13 grades has been revised and expanded during the past 20 years, in pace with the changing requirements of the telephone companies and technical developments in papers, until today there are 24 standard grades.

The standard range covers papers from 100 per cent rag content for permanent record purposes down to a groundwood-sulphite manila stock for such requirements as temporary use forms and draft copies. The types of papers included are ledger; bond; writing; manifold; duplicator, both mimeograph and hectograph; and safety. Since rag stocks are used primarily for permanence, only papers of 50 per cent rag content or higher have been standardized on the theory that at least half the fibers

present should be of a permanent nature. While for the most part the use requirements of these various grades of paper are similar to those of any large business organization, a number have special applications to the telephone business.

Approximately 2,000,000 pounds of paper are required annually for recording the many millions of local and long distance toll calls.

Up to this point the papers covered have been those standardized for printed forms, office requirements, and other business purposes. In addition, and representing a considerably greater volume, is the paper used for telephone directories with which you are all familiar. For these books approximately 54,000,000 pounds of text paper, which would be classified in the trade as catalog paper, and 2,000,000 pounds of cover stock are required annually. While directory stock varies slightly, particularly in shade and finish, depending upon the mill producing it, all of this paper is manufactured to conform to the same specifications. Three weights of paper are used, 22.5, 28, and 32 substance on a 24 x 36—500 basis, the weight selected depending on the size of the book. The furnish consists approximately of 65 per cent groundwood and 35 per cent sulphite with 7 per cent clay filler. Since the paper furnished in rolls, is billed on a weight basis and used on an area basis, weight control is of considerable importance. Based on annual averages deliveries are conforming within the 2.5 per cent tolerance specified for this characteristic. Adequate physical strength is essential to insure that breaks do not occur on the high-speed presses and also that the finished books stand up for the six months to a year of service life.

The finish must be satisfactorily smooth to give a good printing surface and yet sufficiently absorbent to printing ink to minimize offset. Since the size of the book is directly affected, thickness must conform within definite limits. Legibility being a primary requisite every effort is made to keep the paper as free as possible from dirt specks, shives, and shiners. While in newsprint these are not particularly serious, in directory stock difficulties would immediately arise if the legibility of the telephone numbers were affected. Brightness and opacity are of obvious importance. White paper is used for ordinary listings and canary stock for the classified sections. Since cuts as well as printed matter appear in the latter, opacity is particularly important.

Supplementary to the regular directory stock, there is a requirement for almost a million pounds of paper each year for the printing of information operators' directories which are issued at frequent intervals to care for the many new and changed listings. For this requirement two types of paper are used; one a 16 substance No. 4 bond, and the other a heavier and lower groundwood-content paper than the regular directory stock to provide greater strength to care for the hard handling these books receive.

In addition to the papers already referred to, many miscellaneous papers and paper products have also been standardized. These include such diversified items as envelopes, filing supplies, addressing machine rolls, adding machine rolls, carbon paper, blueprint paper, pads, notebooks, blotters, and paper towels. While it is not possible within the scope of this article to discuss all of these, one of our perennial difficulties which will bear mentioning is with card stock. Since it is directly related to filing space, the bulk is important. Our thickness specifications are in line with trade customs, those of other large users such as the Government Printing Office, and when adopted were approved by many of the mills making these stocks. In spite of this, deliveries frequently ran overthick, often appreciably so. This would seem to indicate that either the specifications are too stringent or improvement could be made in manufacturing control. Another card problem has to do with the color. Salmon for example may be anything from bright orange to deep pink according to the mill manufacturing the stock.

In preparing specifications effort is directed toward describing the commercial grades required in terms of fully practical and reasonable quality limits. Any existing specifications or trade customs are taken into consideration and where possible limits having general recognition are adopted. Frequently tentative specifications are submitted to a number of representative mills making the type of paper in question and the final requirements adopted are a result of this co-operative effort.

Physical tests are made under controlled laboratory conditions of 70 deg. Fahr. and

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65 per cent relative humidity. These were adopted some years ago because they were the TAPPI (Technical Association of the Pulp and Paper Industry) Standard.

Delivery inspections are for the most part made on a spot check basis, their frequency depending on the importance and past performance of the paper. However, where large quantities are involved or the paper is of particular significance such as in the case of directory and toll ticket papers, every shipment is tested and outturns from each mill run are also required. One of the more frequent causes for rejection is curl. This is particularly troublesome since it causes real difficulties in printing and duplicating operations and yet, is not readily evaluated in the laboratory. It is also markedly affected by humidity. A curl that is very pronounced at 30 per cent relative humidity, a typical indoor winter condition, may disappear altogether due to easing of the stresses in the paper, after conditioning to 65 per cent relative humidity in the laboratory. Any suggestions as to how to measure curl and what is an acceptable magnitude would be welcome.

Production of Pulp from the Fibrous Elements of Sugar Cane Bagasse

S. D. WELLS[1] and JOSEPH E. ATCHISON[2]

The fibers of bagasse are fine, strong, and flexible, and are suitable for manufacture into high-grade pulp and paper. However, in addition to the fibers, there is an appreciable amount of short, nonfibrous cells or pithy material which has a very low felting power. If left in the pulp, these cells render it more difficult to bleach, tend to slow up the beaten stock excessively, decrease the strength properties greatly, and make the product unsuitable for conversion into high-grade paper. Digestion of the pithy material consumes much more of the chemical than does the fiber, yet it yields but little chemical pulp. On the other hand, if the pith is removed and discarded, the yield of pulp from bagasse is entirely too low to permit economic production. Many investigators have advocated separation of the fibrous elements from the pith [Heim, F., Haheu, J., and Matrod, L., *Papeterie* 42:539-543, 578-587 (1920); *Paper* 27, no. 2:11-14, 36 (Sept. 15, 1920) and Kumagawa, Hachiro, and Shimomura, Kankichi, *Papier-Fabr.* 22, no. 2:13-17; no. 3:21-23 (Jan. 13, 20, 1924); *Paper* 32, no. 2:7-10 (May 2, 1923)] but none have attempted to put such a process into commercial operation because there was no use for the pith. As a result of this, many mills have failed in their attempt to produce a merchantable paper from bagasse, because they sought a high yield by leaving the pith cells in the finished product.

It is apparent, therefore, that if a suitable use can be found for the pith, and an efficient and inexpensive method can be devised to separate the pith from the fiber, the total yield of usable stock will be high, and objections to the use of bagasse as a raw material for papermaking may be overcome.

The purpose of this study was to separate the pith from the fibrous elements of bagasse, to produce an easy bleaching pulp from the fibrous elements, and to use the pith as a filler and stiffening in kraft paperboard.

The line of attack was similar to that described by Wells [Wells, Sidney D., U. S. patent 2,029,973 (Feb. 4, 1936)] in a patent issued for the separation of pith from the fibrous elements of such cellulosic material as bagasse, and the utilization of each component for products for which it is most suitable. Raw bagasse was treated in a rod mill with partially spent caustic black liquor from a subsequent digestion step, this treatment bringing about a separation of the fibrous and cellular elements. After removal of spent liquor from the stock, a screening operation followed in which the fiber was separated from the pith on a gyratory screen. The fibrous material was then cooked in a short digestion process with cooking liquors containing an excess of caustic. The partially spent cooking liquor was removed and used in the preliminary treatment in the rod mill. The unbleached pulp was subjected to a bleaching operation consisting of two stages. The pith was mixed with unbleached southern kraft in various proportions and made into ninepoint corrugating paperboard.

Raw bagasse was obtained in bales from the Audubon Sugar School of Louisiana State University. It had been baled and shipped immediately after the grinding and extraction process in the sugar mill. The moisture content was about 45 per cent and it contained some residual sugar which was in the process of fermentation. As a result of the severe action of the grinding rolls, the material was broken up sufficiently for use without further mechanical disintegration.

The preliminary work consisted of determining the optimum conditions to be used in carrying out the various operations.

From a study of the results obtained by using various conditions in the rod-mill runs, it was concluded that the most favorable results could be obtained if the amount of caustic were 9 per cent of the weight of fiber (moisture-free basis), the consistency 15 per cent, and the duration of the rod-mill treatment 20 minutes at a temperature of 95 to 97 deg. C. This would be equivalent to passage through two commercial 7 by 16-foot mills in series at the rate of 60 tons per day with a power consumption of 182 horsepower each.

When using the gyratory screen about half of the total yield of semipulp was separated as pith and very short fibers and the fibrous fraction consisted entirely of long fibers and fiber bundles.

The nature of the pith fraction indicated that it might be used as a filler and possibly as a stiffening agent in kraft paperboard. Two series of runs were made with this idea in mind. In the first series, both kraft and pith were beaten separately to a freeness of 400, mixed in various proportions, and made into sheets.

In the second series, the kraft was given a preliminary rod-mill treatment and then beaten for 30 minutes; the pith was unbeaten. Mixtures were made of these two stocks and sheets were made as in the first series.

The strength characteristics of the paperboard prepared in the second series of runs appears to be much better than those prepared from stock at the lower freeness. The stiffness of the paperboard is actually materially increased by addition of the pith and is higher for the pure pith paperboard than for the pure kraft paperboard. The bursting strength is much greater and the tearing resistance sufficiently high for commercial ninepoint corrugating paperboard, even when as much as 70 per cent pith is used in the paperboard.

In all cases the appearance and formation

(1) Research Associate, The Institute of Paper Chemistry; (2) Graduate student, The Institute of Paper Chemistry.

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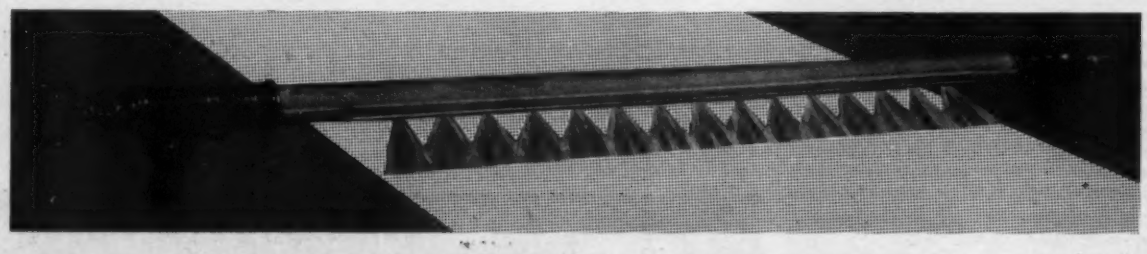

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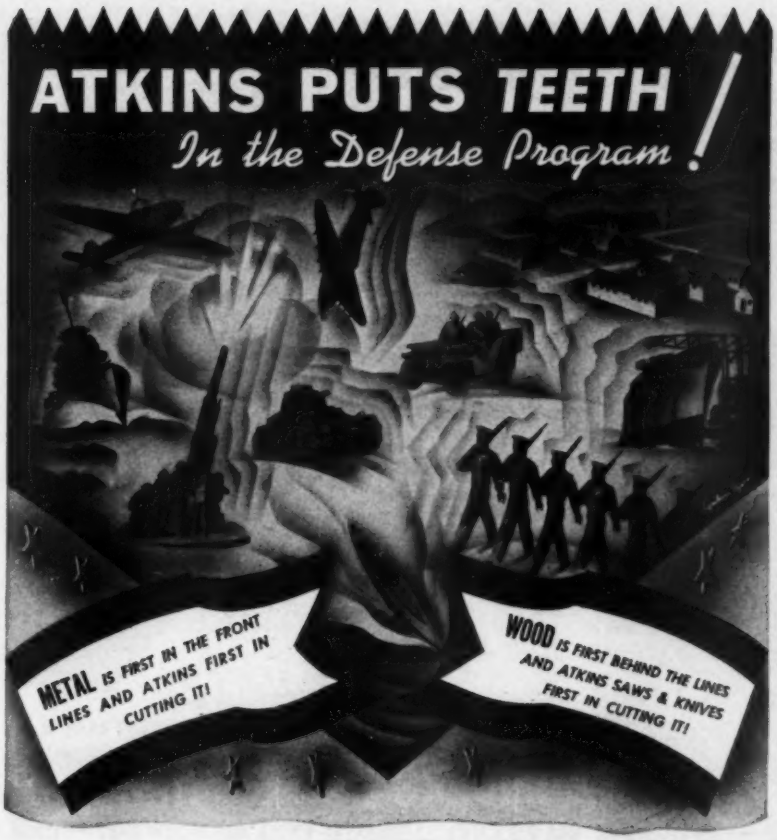
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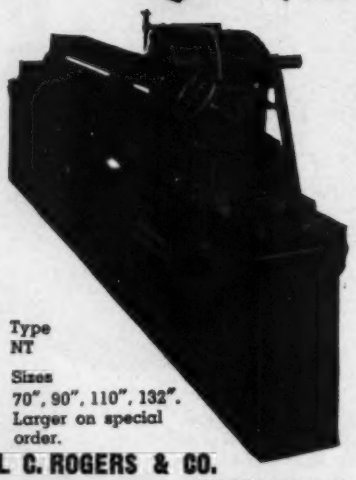

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of the sheet was much better when a high content of pith was present than when the sheet contained a high content of kraft.

The objection to the use of bagasse because of its bulkiness is overcome by this 2-stage treatment.

A high quality, easily bleachable pulp can be produced from the fibrous fraction by either a mild soda or sulphate cook with a straight-line temperature rise to 160 deg. C. over a period of from 120 to 130 minutes. The sulphate process gives a slightly higher yield of pulp that is more easily bleached than the soda cook with the same concentration of active alkali.

Interpretation of Flue-Gas Analysis

PHILIP W. SWAIN, Editor of Power, McGraw-Hill Publishing Co.

The discussion will be confined to solid fuels (carbon, coal, lignite, wood) and fuel oil.

The two important combustible elements in commercial steam fuels are carbon and hydrogen. Whether burned in their elementary forms, or in the form of hydrocarbon compounds, hydrogen and carbon produce the same combustion products. The hydrogen always burns to water (H_2O). The carbon normally burns to carbon dioxide (CO_2), although some of it may burn incompletely to carbon monoxide (CO) under certain conditions. For simplicity, this study will assume that all the carbon in the fuel is completely burned to CO_2.

In addition to these two products of actual combustion (H_2O and CO_2), the furnace flue gas must contain all the nitrogen in the air supplied plus all the oxygen not used up in burning the carbon and hydrogen.

When hydrogen or carbon combines with oxygen, we ordinarily say that the carbon or hydrogen "burns" and the oxygen "supports" the combustion. Chemically, we could say with equal justification that the oxygen "burns" and that its combustion is "supported" by carbon or hydrogen.

In certain types of problems this latter concept helps one to a clear understanding and permits convenient short cuts in computation.

If we consider oxygen as a combustible it must have a "heat value" expressible in British thermal units per pound and the same must be true of air because of its fixed oxygen content. This value varies slightly according to the element with which the air burns. Burned with pure carbon, the heat value of air is 1270 B.t.u. per pound; with pure hydrogen it is 1800 B.t.u. per pound.

For all practical purposes, the heat value of air may be taken as 1310 for anthracite coal, 1350 for all other coals (including lignite) and for wood, 1370 for all fuel oils. None of these values will give an error greater than 1 or 2 per cent.

To determine the theoretical air required to burn one pound of any fuel it is merely necessary to divide the heat value of one pound of the fuel by the heat value of one pound of air for the given fuel. Thus, if a certain wood waste has a heat value of 5500 B.t.u. as fired, its theoretical air requirement is $5500 \div 1350 = 4.07$ pounds of air per pound of fuel.

If this wood is burned with 50 per cent excess air, the actual air supplied per pound of wood burned will be $4.07 \times 1.5 = 6.1$ pounds. To figure the total fuel gas produced per pound of wood, assume that all the wood goes up the stack with the air. Then the weight of flue gas will be $6.1 + 1 = 7.1$ pounds. Note the simplicity of this method. Note also that the error is negligible, for all practical purposes.

The concept of "burning air" is equally helpful in gaining an understanding of the significance of the flue-gas analysis, particularly when burning coals low in hydrogen.

We shall deal here with gas *volumes*, because both the air analysis and the flue-gas analysis are normally reported on a volumetric basis. To make the air and flue-gas volumes strictly comparable we shall assume that the flue gas is cooled to the temperature of the original air before the volume of its constituents is measured.

With these assumptions, note that the nitrogen in the air goes through unchanged in volume, along with any part of the oxygen that does not "burn." The part of the oxygen that does burn with carbon produces exactly the same volume of carbon dioxide. Any oxygen that burns with hydrogen produces a greater volume of water vapor, but this condenses to liquid water before analysis. This means that any oxygen that burns with hydrogen simply vanishes as far as the analysis is concerned.

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Air has 79 cu. ft. of nitrogen and 21 of oxygen. Imagine this air burned (without any excess) with pure carbon.

If the fuel contains no other combustible than carbon, the percentage of oxygen in the flue gas will always be 21 minus the percentage of carbon dioxide, and the percentage of excess air will always be 100 times the percentage of oxygen divided by the percentage of carbon dioxide.

All coals, wood, and fuel oil contain some available hydrogen, which complicates the situation somewhat because, as already noted, any oxygen that combines with hydrogen represents a vanishing volume. Anthracite coal, with the least hydrogen, comes closest to pure carbon. Bituminous coal and fuel oil show increasing deviations in that order.

With an average fuel oil the hydrogen present will burn about 1 volume of oxygen for each 2 volumes burned by carbon. To put it another way, the hydrogen will consume about 1 volume out of every 3 of oxygen actually "burned," while the carbon takes the other 2.

Let's assume a case where (out of each 100 cu. ft. of air) 15 cu. ft. of oxygen are burned and 6 cu. ft. are excess. Then the true excess air is $100 \times 6 \div 15 = 40$ per cent. In this case one might expect that the flue gas would show 6 per cent oxygen. Actually the percentage of oxygen in the flue gas will be somewhat greater than 6 per cent, because the burning of some of the oxygen with hydrogen shrinks the total volume below 100 cu. ft.

Of the 15 cu. ft. of oxygen burned, 5 cu. ft. (one-third) will combine with hydrogen and vanish from the analysis, while the remaining 10 cu. ft. will produce 10 cu. ft. of carbon dioxide. Then the cubic feet and percentage of flue-gas constituents will be as follows:

	Cu. ft.	Per Cent
Carbon dioxide	10.0	10.5
Oxygen	6.0	6.3
Nitrogen	79.0	83.2
Total	95.0	100.0

Clearly, the rule given for pure carbon will not work here: $100 \times 6.3 \div 10.5$ is *not* 40 per cent which has been shown to be the correct percentage of excess air in this case.

Blow Down Heat Recovery Systems for Sulphate Mills

G. A. K. HUNT[1] and H. C. L. MILLER[2]

For many years, no attempt was made to recover heat from the digester blows. Hot water, if used, was obtained (1) by blowing steam from the power plant directly into the water storage tank, (2) from pans in the liquor recovery plant, or (3) by admitting steam into the shells of closed heat exchangers from which the condensate could be returned to the boiler plant. The use of steam from the power plant, even if extracted from the turbine, is seldom economical and should be avoided as far as possible. With the development of automatically-controlled blow down condensing systems, the use of power plant steam has been greatly reduced although many modern mills still use direct steam for final control of hot water temperature.

The heat, recoverable in blow down, has an economic value consisting of possible recovery amounting to 2,200,000 B.t.u. per ton of pulp.

Hot water requirements for washing will vary from 2,000 to 7,000 gallons or more per ton depending upon the grade of pulp being produced, the type of washing equipment and the subsequent treatment to be given. In the case of mills deriving their fresh water supply from wells, the inlet temperature is nearly constant throughout the year and the blow down heat recovery system will operate under relatively steady conditions. However, when the water supply is obtained from rivers, the inlet temperature will vary widely from season to season and the wash water requirement in total heat units will change proportionately where a constant washing temperature is desired. In such mills it is often necessary to find other sources of heat to make up the total required—either a gas-off condenser, surface condenser on the evaporator or, finally, a shell-and-tube heater fed with steam from the lowest turbine bleed point.

Two main types of recovery systems have been developed and are in common use. These are classified as (1) the surface condenser and (2) the jet, or direct-contact, condenser system.

A typical surface condenser system is relatively simple both in design and operation. However, in spite of washing arrangements for the exterior heating surface, either manually or automatically controlled, and a specially designed condenser layout, there is a tendency for the fine pulp particles carried along with the steam to accumulate in the tube bundle and reduce the effectiveness of the heating surface. It is possible, of course, to provide extremely large lanes in the tube bank and wide tube spacing but this increases the condenser size for a given duty and correspondingly increases the cost.

In the selection of a surface condenser system, care should be taken to assure that the fresh water supply does not contain solids which would be deposited in the tubes while the water passing through them is being heated.

An inherent disadvantage of the surface condenser system is that the condensate leaves the condenser at or about the boiling point at atmospheric pressure, 212 deg. Fahr., whereas it leaves the system at 140 deg. Fahr. or below, in the jet condenser systems later described. This represents a considerable loss of heat (72 deg. Fahr.) unless a condensate cooler is installed. Any condensate cooler would necessarily be of the liquid-to-liquid type and, as the condensate always contains some small percentage of pulp in suspension, such a cooler would probably plug up eventually and give trouble.

It should be noted in the consideration of any type of blow recovery unit that the rate at which steam is evolved during the blow varies to a marked degree—not from blow to blow but during the period of

(1) District Engineer, Foster Wheeler Corporation, Richmond, Va. (2) Southeastern District Manager, Foster Wheeler Corporation, Richmond, Va.

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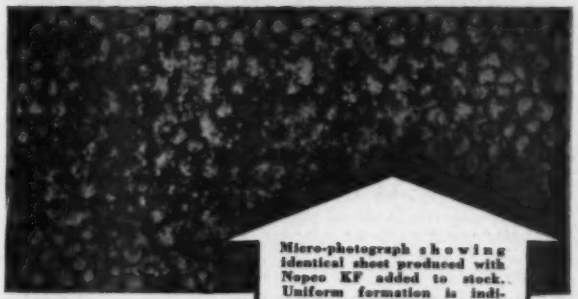
Micro-photograph of sheet (furnish 50% sulphite and 50% soda) after treatment with ordinary type foam killer. Note uneven transmission of light indicating poor sheet formation.



Micro-photograph showing identical sheet produced with Nopco KF added to stock. Uniform formation is indicated by even distribution of light and dark areas.

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any particular blow. The total time of the blow, and the relation of the peak to the average rate of steam flow, is affected by the size of the blow lines and by the mechanical design of these lines and the diffusers, separators, cyclones, or blow tank.

To be effective in recovering all of the heat available, the condenser on any system must be designed to handle this peak rate. Thus the surface condenser, being the primary as well as the secondary unit in this system, must be selected for the peak rather than the average rate. This tends to increase the cost of the surface condenser design.

The simplicity and low power charges of the surface condenser system, however, make it attractive in many instances and it has been generally used.

There are two common types of jet condenser systems. They differ principally in the manner by which heat in the accumulated contaminated water is transferred to the fresh water, and may be classified as (a) liquid-to-liquid heat exchanger, and (b) vapor-to-liquid heat exchanger.

A typical arrangement of the liquid-to-liquid system has the advantage that contaminated liquid can be cooled below the boiling point and thus a larger percentage of heat can be recovered than with the surface condenser system. It has, however, several inherent disadvantages. First, the parallel flow condenser is not as efficient as the countercurrent flow condenser and it is more difficult to control the tail pipe temperature by varying the water quantity circulated. Second, there is no free blow to atmosphere in the event of failure of the condenser water pump or if water in the accumulator tank should become entirely heated. Steam must blow down through the condenser into the top of the accumulator tank and out the tank vent. This frequently results in pressure building up on the blow system, the loss of a large amount of hot contaminated water from the accumulator tank to the sewer or requires the installation of expensive and unreliable pressure relief valves.

On the heat exchanger side, the screens employed are difficult to keep clean and, if they are by-passed, there is no means whatever of keeping pulp accumulations out of the heat exchangers, consequently reducing their effectiveness and often plugging them completely. In the event of corrosion or other failure of the spiral heat exchanger, the complete heating surface must be replaced. This would not be the case if tubular exchangers were used, where the individual tubes are replaceable and may be cleaned as required.

The difficulties which have been experienced with both the surface condenser and the liquid-to-liquid jet condenser systems may be overcome by a vapor-to-liquid exchanger jet condenser system.

In a typical installation, steam received from the digester blow system is condensed in a countercurrent condenser, and the vent from this condenser is led to the top of the contaminated water accumulator tank at a point above the water level. This tank forms a second cyclone separator while still providing a free blow to atmosphere. Cooled water from the bottom of the accumulator tank flows by gravity to the upper portion of the countercurrent condenser. The water and condensed steam are pumped from the bottom of the condenser to the upper section of the accumulator tank, where the heated water collects, apart from the colder water in the bottom. The accumulator tank is usually made of large proportions to provide adequate storage and to insure against loss of heat in case several blows are made in abnormally quick succession.

A novel feature of this system is the flash heater in which the heat in the contaminated water is transmitted to the clean wash water.

This system possesses the great advantage that the pulp accumulations in the contaminated water do not contaminate the heating surface, because the pulp is left behind when the clean vapors flash and rise around the tube bundles. The heat transfer is much higher than with the liquid-to-liquid exchanger, because the transfer rate from a film of condensing vapors to a tube is much higher than from liquid to a metal wall.

An accurate and sensitive control is an indispensable part of any heat recovery system.

Although many types of control have been applied to heat recovery systems, none have proved as satisfactory as electrically operated units. Other types of control, both air and hydraulically operated, have been applied to heat recovery systems but their performance has left much to be desired. With electric control, the initial impulse device, as well as overtemperature elements, are wired to supersede momentarily the normal temperature response without altering the accuracy of the temperature regulator under normal conditions of flow. The electric regulator is in the form of a push-button station and permits regulation of water flow to the condenser by remote manual control on the digester charging floor, if desired. A clutch and handwheel are provided at the valve actuator so that this valve may be manually controlled at this point.

The advantages of the vapor-to-liquid flash heater system are as follows: (1) completely automatic control; (2) no possibility of pulp accumulations fouling heating surfaces; (3) use of countercurrent flow in condenser; (4) free blow to atmosphere in case of failure of water supply to the condenser, or irregular blowing schedule; (5) heating surface elements individually replaceable; (6) heating surface cleanable internally if fresh water is of scaling nature; and (7) separator effect on condenser vent to prevent carryover of water from the stack.

Refining of Groundwood Tailings

C. P. REAPER, Manager,
Canadian Ingersoll-Rand Co.

The subject of refining is divided into two classifications: (1) refining of primary pulps; and (2) refining of secondary pulps or tailings.

This paper will deal with the refining of secondary pulps or tailings as applied to the mechanical pulping process.

There are four principal tailings losses in a groundwood mill; namely, (1) bull screens; (2) sawdust; (3) knotters; and (4) fine screens.

The refiner manufacturers have been asked to mix all four and then put them through a refiner and obtain a uniform refined pulp. This is not an easy result to accomplish.

Bull screen rejects in most cases should have a preliminary treatment before being put into a refiner. There are a number of groundwood installations where all these tailings are treated and returned to the system. This gives a closed system, with savings in heat, pulp, and white water. In closing the system the fine screen perforations have been reduced in some cases from

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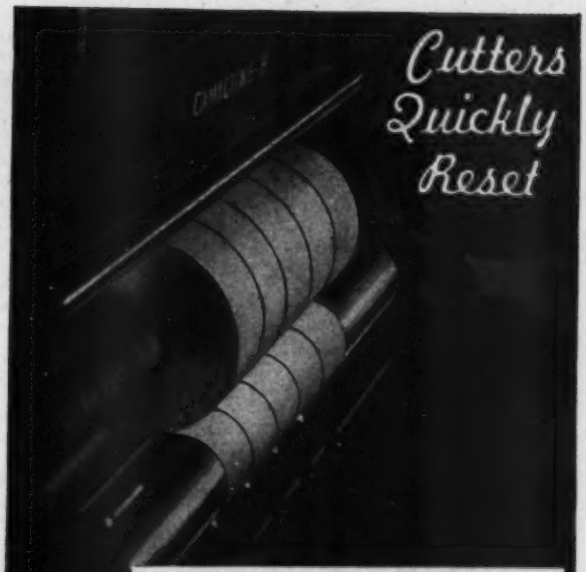

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The above is quoted from a letter from Mr. George B. Goldman of the Goldman Paper & Paper Stock Company, Inc. CAMACHINES are especially efficient under the conditions outlined above, and we would welcome the opportunity to send you illustrated literature. Please let us hear from you.

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At the present time, holding a log against a stone to produce pulp requires up to 75 horsepower per ton.

The Haug refiner, equipped with anti-friction bearings, consists of a cylindrical shell, inside of which rotate 6 rolls. The rolls are free to turn due to the friction between the pulp and the rolls. They also are thrown out by centrifugal force which helps to treat the tailings. This type of machine gives a low power consumption, and tailings have been treated at 4 to 7 horsepower per ton.

Status of Stiffness Testing for Containers

PIERRE DREWSEN, Chemical Engineer
Hinde & Dauch Paper Company

A session of the Container Committee at the TAPPI Annual Meeting in 1940 was devoted to discussing what it might contribute to TAPPI Standards. The suggestion was made that a questionnaire be sent out on methods of testing container liner, corrugating, single- and double-faced board, and corrugated boxes for stiffness. The replies to the questionnaire reveal a general similarity in objectives but vast differences in the details of their accomplishments.

To begin with, it was recognized that our nomenclature might be standardized to some extent, particularly with respect to the word used for designating the characteristic we are immediately concerned with: *Stiffness, rigidity, crushing resistance.* One of the first responsibilities of TAPPI will be to decide which word or expression shall be used in this present sense, and to formulate an acceptable meaning for it. As a starter we proposed and invited criticisms of the following definition: "*Stiffness* is that property of container board or container material which resists compressive forces measured by the compressive force in pounds required to produce a permanent break or distortion under standard conditions of test." One reply suggested that *compressional resistance* be used instead of *stiffness* for the reason that the latter is already defined in standard handbooks, hence its adoption as suggested might be a source of some ambiguity. It is obvious that TAPPI must adopt a satisfactory definition of the most important property of the paper box.

Six replies indicated the possession of a conditioning room. It should be easy to adopt a conditioning standard and have it observed uniformly throughout the industry.

The manner of sealing empty boxes prior to the compression test is, without any question, sufficiently important to standardize.

Respondents were fairly unanimous in the matter of adhesive, silicate of soda being generally applied with a hand-operated brush. One did say, however, that they sometimes use paste, and one mentioned "sealing tape."

There are some differences in the types of apparatus used for making the large capacity compression tests, but we shall not discuss these as we are concerned with results rather than with the manner in which they are obtained.

All replies indicated that the reporting laboratories make stiffness tests on specimens of the various combined and uncombined materials used in the corrugated box industry. On container liner and on corrugating, that is to say, on the uncombined flat sheets, five make "ring tests" and one "straight strip" tests. Five out of the six reported the practice of making flat crush tests on corrugated material.

Four laboratories use small compression tests for control of quality in their paper mills on all grades of paper made. Four indicated that such tests are also used for the control of the quality of the finished product in the box plant. Five employ them for regular routine laboratory tests for general check purposes, and six use such tests occasionally for specific information. Tests made for other purposes included such answers as "check on purchased material," "complaints," and "establishment of box plant and mill policies."

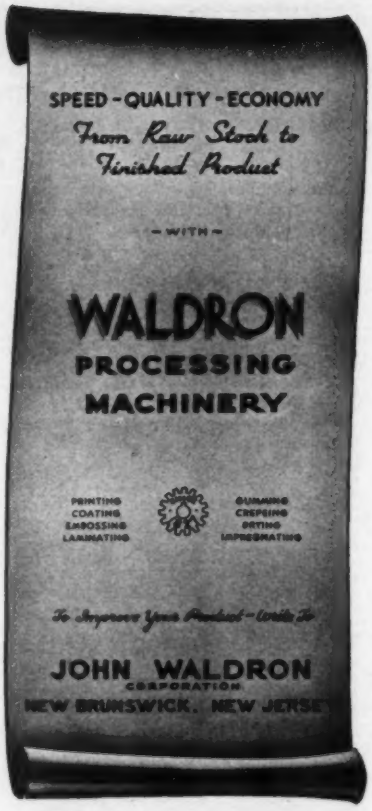
One laboratory uses moisture-free samples for the control of paper mill quality. Two reported occasional tests on moisture-free samples, and three said they never test moisture-free samples. None of them makes tests on samples which are strictly unconditioned. Five condition at definite temperature and humidity and one to a constant moisture content. Replies on length of time of conditioning varied from "to stabilization" to "to moisture-free," and from "1 to 4 hours" to "from 1 to 24 hours."

The equipment used consisted of: four Riehle testers, one Perkins, one Hinde, and Dauch. The sample cutters reported: two Schopper, one Eastman Kodak, one Thwing, one Ideal, and one Jacques. Three reported the use of "special" templates to hold samples during the test, and three replied, none.

The samples show considerable lack of uniformity. One laboratory uses specimens 2 by ½ inches for calipers up to 0.022 inch and 6 by ½ inches for calipers over 0.022 inch. One uses 6 by ½ inches for all ring tests and 3 by 3 inches as well as 12 by 12 inches for flat crush tests. Another uses specimens 3¼ by 1½ inches for ring tests on corrugating paper, and 12 by 12 inches samples for flat crush tests using the large scale compression machine. One uses 6 by ½ inches samples coiled up into a cylinder ¾ inch in diameter, and two use a 10-square inch area circle for flat crush tests. Obviously here is a fruitful field for standardization.

Three laboratories reported that they test every reel of paper made in their mills while three make tests at irregular intervals. Three employ special operators for this purpose. Two reported that they keep old samples for six months while one keeps them for two months. One mill rejects a substandard product on the basis of these tests, and the others use the test results as a signal to machine operators to make the necessary changes.

Four indicated their belief that standard testing methods should be adopted throughout the industry, but one was doubtful about this and one thought that the time was not yet ripe.



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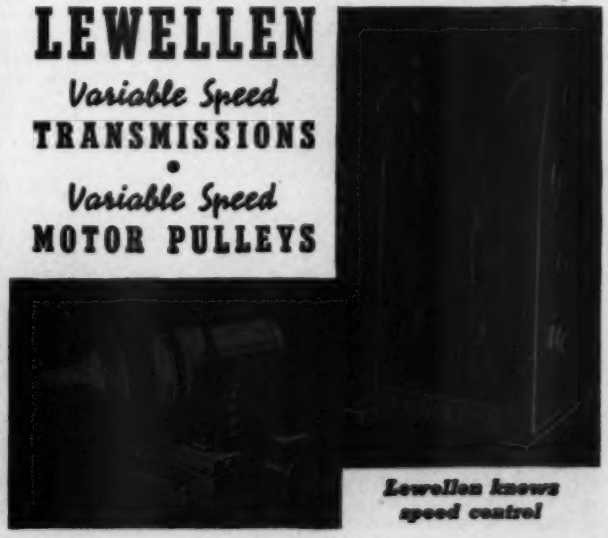

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NEW EQUIPMENT AND SUPPLIES

Tiering Truck

A fork truck, that will handle loads as heavy as 7,000 lb. and tier them in piles 15 ft. high, has been introduced by Clark Tructractor Division of Clark Equipment Co., Battle Creek, Mich. Made in several models, including straight lift, tilting, and

telescopic tiering, the truck has a minimum height of 61½ in. The machine is powered with a 6-cylinder tractor type motor, travels at speeds from 1 to 7 m.p.h., and has rear wheel steer and hydraulic brakes. The lifting unit is powered with an hydraulic vane type oil pump driven by direct drive from motor.

Portable Centrifugal Pump

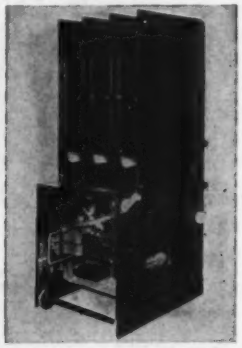
Chain Belt Company, Milwaukee, Wis., has announced a 3,000 g.p.h. portable centrifugal pump, known as *Rex Junior*, which is 15¼ in. long, 11¾ in. wide and

15¾ in. high. The pump, weighing 54 lb., is powered by a single cylinder, air cooled engine of ¾ to 1 hp. The engine is equipped with an automatic governor that speeds up the motor when the pump catches its prime and starts to lift water.

Circuit Breaker

A new "De-ion" air circuit breaker, designed especially for circuit protecting applications indoors in central stations, power plants, and in industrial plants, has been announced by Westinghouse Electric & Manufacturing Co., East Pittsburgh. The breaker, designated as the new type DH breaker, is available in ratings from 100,000 to 250,000 kv.-a. interrupting capacity; 600, 1,200, and 2,000 amperes, for operation on 2,500 and 5,000 volts, three phase, 60 cycle a-c.

Among the features of the breaker, cited in the announcement, are: inlaid silver-to-silver main contact; arcing contacts of tungsten alloy; isolation of high voltage and control circuits; and the "De-ion" method of arc quenching.



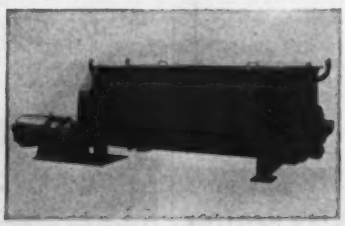
Closing operation is of the solenoid type. Contact opening is accelerated by strong springs.

The breaker can be installed so that access to the rear, except for connecting the main leads, is unnecessary. Access to the contacts for maintenance requires only the removal of the light weight arc-chute. Barriers isolate the live phases from each other, and from the metal enclosure, and an opening of the breaker suppress the residual arcing flame and muffle the noise.

Mixing Machine

A double ribbon mixing machine, designed for mixing materials ranging from dry powders to heavy viscous pastes, has been introduced by the H. K. Porter Co., Inc., 4963 Harrison St., Pittsburgh.

Two metal ribbons, welded spirally to the inner surface of the mixing cylinder, create a double folding action on the materials being mixed. The spirals are so placed that the mix is worked toward the discharge end of the cylinder, permitting the mix, when completed, to be removed easily. The mixer cylinder lies within a

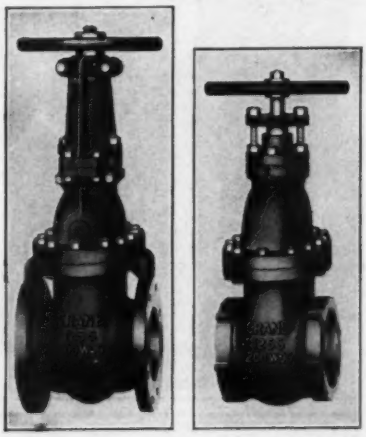


baffled jacket, for either heating with hot water or for cooling with cold water.

Other features of the machine, cited by the manufacturer, include: motor mounted on same base as machine itself; machine fitted with anti-friction bearings and special end seals to keep materials being mixed from the shaft all gears and other working parts totally enclosed; and machine available in any capacity from laboratory to large production sizes.

Iron Body Wedge Gate Valves

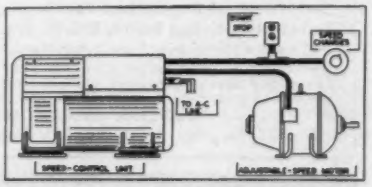
A new line of standard iron body wedge gate valves for 125 lb. steam, 200 lb. cold working pressure has been brought out by Crane Company, 836 S. Michigan Ave., Chicago. This new line includes brass trimmed and all iron patterns, with rising



or non-rising stem, in 2 to 12 in. sizes inclusive; quick opening and Underwriters' patterns, alloy trimmed, alloy cast iron valves for process work; and standard iron body valves for marine cargo oil systems. Among the features of these new valves are: malleable iron handwheels; deep stuffing boxes; closely-bolted, flat gasketed body-bonnet joints; and shoulder type seat rings.

Speed Control Units

A-c. adjustable speed drive units of 20, 25 and 30 hp. have been announced by Reliance Electric & Engineering Company, Cleveland, as additions to its line of smaller V-S units. Each of the new units is mounted horizontally, the mounting brackets containing longitudinal rubber shock pads.



Three wires from a 3-phase, 60 cycle, a-c. power source (220, 440, or 550 volts) are connected to the control unit in the same manner as for any motor and control. Secondary circuits are run to the other three elements of the drive; namely, driving motor, speed adjuster, and start-stop push button station. Both the speed

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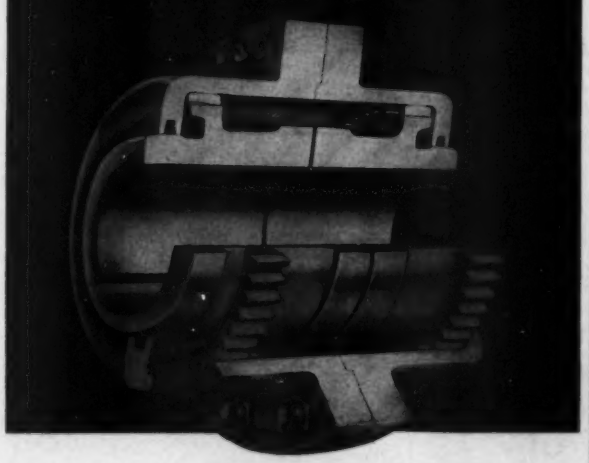

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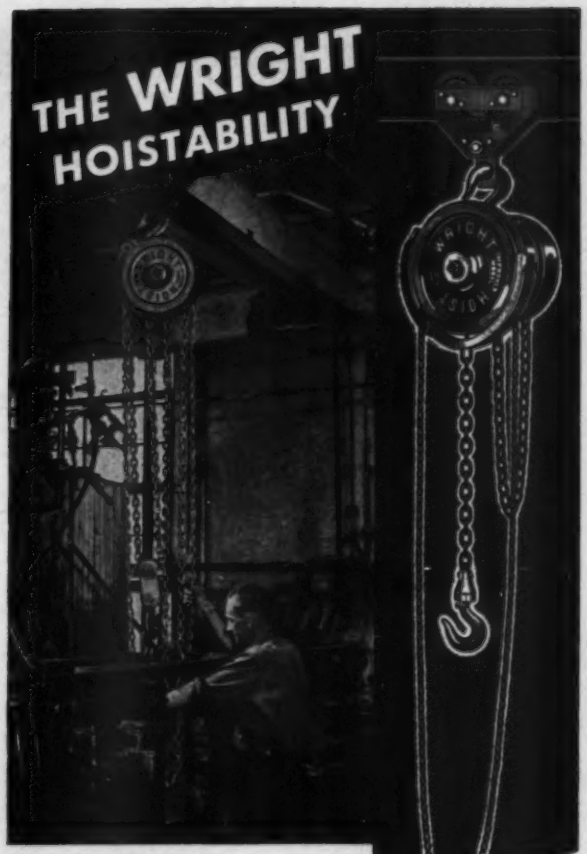

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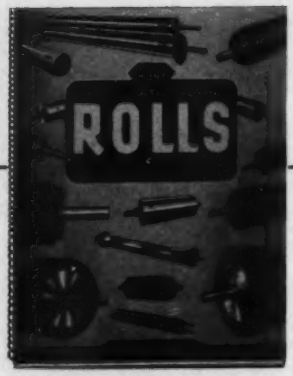

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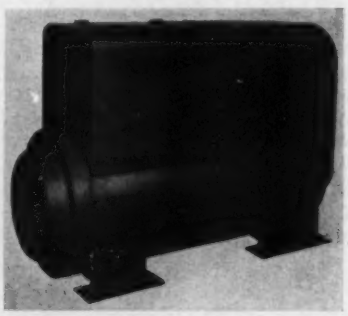


supplied in a variety of types, including enclosed fan-cooled, splash-proof, and explosion proof. Gearmotors may also be used. Quick stopping is obtained by regenerative braking.

Concrete Floor Dressing

The Truscon Laboratories, Caniff & G. T. R. R., Detroit, has announced a new dressing, known as *Flor-Dye No-Buff*, for coloring and dust-proofing concrete floors. Flor-Dye is a patented material (U. S. Patent 2,220,341), the older finish, known as Standard Dressing, being a wax with dye which required polishing or buffing. No polishing or buffing is necessary in the use of the new material. The manufacturer claims that a floor once dyed by this process is permanently colored and requires very little maintenance thereafter as the color is lodged in the cement instead of being on the surface.

New Transmission Units

A new series of ball bearing pillow blocks and other transmission units incorporating Fafnir *Mechani-Seal* ball bearings, has been announced by The Fafnir Bearing Company, New Britain, Conn. The new transmission units, interchangeable with the separately sealed Fafnir units which preceded them, are available in Types LAK (pillow block), LCJ (flange cartridge) and LC (cylindrical cartridge).

Blast Coils for Heating

A new development in blast coils for heating has been announced by D. J. Murray Mfg. Co., Wausau, Wis., under the trade name *Grid*. The coils, which are of open design, are made to permit freedom of expansion. They are compactly built. The manufacturer states that the

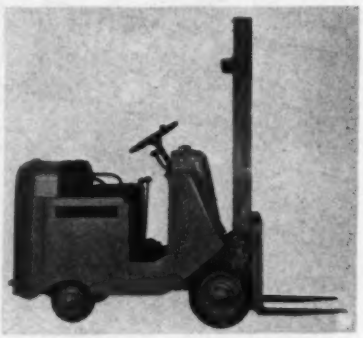
heating surfaces of the coils are immune to corrosion or atmospheric contamination due to sulphur, sulphides or other products of combustion; that moisture has no effect on the heating surfaces; and that no electrolysis can develop as the supply and return line and the steam chamber are of one type metal. The coils are guaranteed for steam pressures up to 250 lb.

Safety Belt Tail Line

Mine Safety Appliances Co., Braddock, Thomas and Mead St., Pittsburgh, has introduced the M.S.A. Steel Safety Belt Tail Line. The line consists of a light, flexible steel cable (tested to 3,900 lb.) with a swaged-on drop forged steel snap at each end. Available in any length, the cable may be furnished with a covering for firm, comfortable grasp, resistant to weathering, oil and abrasive action.

Gas-Powered Lift Truck

Towmotor Company, Cleveland, has announced the development of a lift truck, the LT-40, for handling loads up to 3,000 lb. Built on a 40 in. wheelbase, with a turning radius of 68 in., the new unit has an overall width of 35 in. and an overall length (without forks) of 70 in. Interchangeable attachments fit the unit for handling a wide variety of materials.



Powered by a 22 hp. four cylinder gas engine, equipped with degasser and governor, the truck will lift and stack its load to heights of 7, 9 and 11 feet.

Among the design improvements, claimed by the manufacturer, are: motor assembly and battery accessible by lifting driver's seat; transmission case which permits removal of air ventilated clutch plate without disturbing transmission front (driving) axle housing designed as integral part of frame, thus insuring proper alignment of drive axle with transmission and power plant.

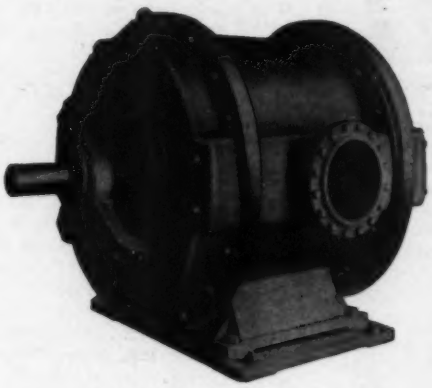
Photoelectric Relay

A new photoelectric relay, housed in a cast alloy chassis with a molded cover, has been announced by General Electric Company, Schenectady, N. Y. This relay will operate at speeds up to 150 interruptions per minute and at a minimum of 40 foot candles at the phototube with not more than 15 foot candles of extraneous light present.

It has a controlled contact rating of 10 amperes at 115 volts a-c., with two normally open and two normally closed contacts. The coil of the relay is energized when the light at the phototube is reduced below 30 foot candles.

Applications include counting, sorting, weighing, measuring, controlling, signaling, inspecting and regulating.

ONLY NASH VACUUM PUMPS HAVE ALL THESE FEATURES



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356
JOHNSON ROTARY PRESSURE JOINTS

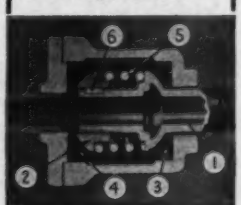
EACH one of these 356 Johnson Joints eliminates a stuffing box type of steam fit that had to be constantly inspected, oiled and adjusted, and periodically repacked. All that is forgotten now because the Johnson Joint needs none of these attentions and in addition provides for the lateral and angular misalignment which calls for so many repairs and replacements in old style steam fits.

Besides being a better way to get steam into the rolls of paper machines, calenders and corrugators, the Johnson Joint offers a simpler, more workmanlike way to provide for syphon drainage of rolls. The same freedom of lateral movement which compensates for misalignment also keeps the syphon pipe from rubbing and wearing on roll journals—lengthens the life of syphon pipe considerably.

Write for new catalog

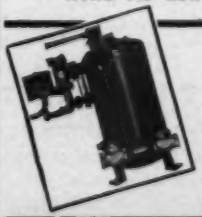
What the Paper Industry Thinks of the Johnson Joint

●More than one hundred mills have purchased 50 or more Johnson Joints. Thirty seven mills have purchased from 100 to as many as 760. Among the hundreds of paper mill users are such firms as: S. D. Warren Co., Container Corporation, Hammermill Paper Co., Champion Paper & Fibre Co., Sutherland Paper Co., Brown Paper Mill Co.



The Johnson Rotary Pressure Joint

Nipple (1) fastened to roll. Sliding collar (2), keyed (6) to nipple. Carbon-graphite rings (3) and (4) which eliminate oiling and packing. Spring (5) is for initial seating only—joint is actually pressure sealed.



The Johnson Electrap

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845 WOOD STREET THREE RIVERS, MICH.

TECHNICAL DEVELOPMENTS

The following abstracts are of the latest developments found in the foreign press.

Vinyl Polymerization Products in Screens

The so-called Hermanit screens are made of vinyl polymerization products, materials which show a very high resistance to corrosion by acids and alkalis. These vinyl polymers may be used in conjunction with metal parts or with metal screens and from them plates and filter cloth may also be manufactured. The author includes ten illustrations of which three are produced herewith. A portion of a screen plate made exclusively of vinyl resin is shown in Figure 1. An experimental fabric shown in Figure 2 appears to be mechanically stronger than the small-mesh twill fabric cloth shown in Figure 3. Rudolf Hermann. Papier-Fabr. *38*, No. 33/34 (Practical communications) 237-9 (1940).

Pulp Fodder

The possibility of using domestic chemical pulp in Scandinavia for feedstuffs, when supplemented with protein from fish and mineral components is discussed. Lignin in mechanical pulp renders it useless as fodder. The digestive processes in the animals fed with pulp are discussed, and the digestion is contingent on the action of bacteria not on enzymes in the digestive tract. It explains why ruminants can utilize cellulose. In finely divided state, pulp may be fed to horses. Pigs do not utilize cellulose as well as they do starch, but they also can digest cellulose. Chemical pulp is higher priced than is other fodder, but its price could be reduced by cooking without barking, since the color is unimportant, and the digestibility is not altered. Experiments in Sweden show that it makes no difference whether sulphite or sulphate pulps are used. The latter can be produced more cheaply, but sulphite can be manufactured from domestic raw materials. Knut Breirem. Papir-J. 28, No. 11/12; 101-3; No. 13-14; 113-5 (1940); Svensk Papperstidn. 43, No. 15; 277-80 (1940) through Bull. Inst. Paper Chemistry, 11, 118-9, (1940).

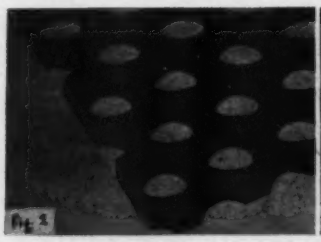
Fig. 1

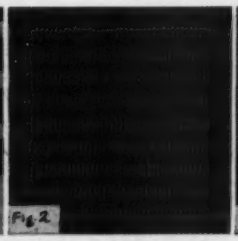
Fig. 2

Fig. 3

Practical Pulp Characterization

This is a well-illustrated address which deals in some detail with methods for determining the degree of pulping, with the alkali solubility of pulps, and especially with methods for determining viscosity of pulps in cuprammonium solution. High relative viscosities are coupled with high tear length, and a relatively high solubility in both 5% and 17.5% NaOH, as well as with high folding endurance. This bespeaks a higher cellulosan content (pentosans and mannans) and better sheet formation than with lower viscosity pulps. The author gives about 50 references to the literature. Wilhelm Klauditz. Papier-Fabr. *38*, 213-6; 221-7 (1940).

Condenser Paper

A comparison was made between condenser papers from rags and from sulphate pulp, and the latter are reported as behaving better on ageing than do the former. Ageing takes place more rapidly in pentachlorobiphenyl than in air, but is most rapid in transformer oils. L. I. Zhurina. Vestnik Elektroprom. 1938, No. 6, 33-6 through C. A. 34,6812 (1940).

Losses of Fillers in Cigarette Paper Manufacture

Calcium carbonate and magnesium carbonate were the loading materials used. The papers ranged in weight from 17.5 to 41.5 g. per sq. meter. The rag half stock consisted of hemp, flax, smaller amounts of cotton and some jute. Cooking conditions depended on the rag composition, and on what fibers were present. Milk of lime or lime and soda were used at 1.5-3 atm. pressure. Bleaching was carried out with a solution of bleaching powder. Retention of filler decreases with decreasing weight of the sheet, and the loss of $CaCO_3$ is far greater than is that of $MgCO_3$. Methods for determining these losses, together with computations are given in great detail, and the results of numerous experiments are tabulated. The author postulates the hypothesis that at a weight of 8 g. per sq. meter (as in "silk-condenser" paper) retention of fillers is due almost entirely to

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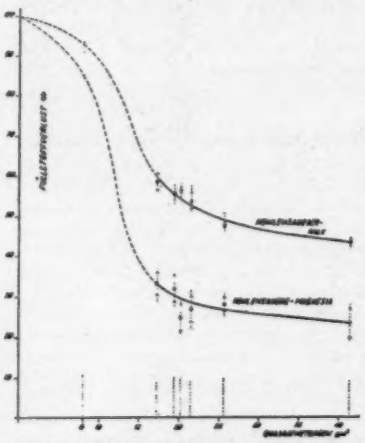
adsorption since filtration of the filler particles is at a minimum. In the accompanying graph the percentage of loss of filler (Fullstoffverlust) is plotted against the weight of sheet per sq. meter. The upper curve is for $CaCO_3$; the lower for $MgCO_3$. The broken lines of the graph are hypothetical slopes below the weights actually studied in these experiments. These should be checked by future actual experiment. Basé. Wochbl. Papier-fabr. 71, 644-9 (1940).

Lignin and Humin

This is the fourth paper in a series which makes it appear that lignins and humins are structurally related. The work refers to the alkylation of various lignins and humins, and their chloro and nitro derivatives. The highest methylation products were obtained from lignins isolated by the sulphuric acid method and were formed by Urban's technique (Cf. Cellulosechemie



(1926), 73). Thus methylated spruce lignin contained 32.3% methoxyl and methylated beech lignin 34.95% methoxyl. The methoxyl content of methylated fructose humin was 21.7%. Difficulties in determining the number and type of hydroxyl groups in lignin are discussed. O. A. Müller. Papier-Fabr. *38*, 186-8, 192-6; 210-2 (1940).

Young Teak as a Possible Papermaking Material

Very young teak thinnings were studied analytically, and considered as a possible source of papermaking in Trinidad. Wood that was respectively 4 and 3 years old gave respectively the following analytical data:—material soluble in alcohol-benzene, 1.75 and 1.0%; soluble in NaOH, 12.01 and 10.3%; cellulose, 55.7 and 56.4%; ash, 0.9 and 1.0%. Fiber dimensions are also given. The wood is readily pulped by the soda process, with a yield of 46.4%. However the brown pulp could not be bleached easily. This pulp was obtained by cooking with 24% NaOH on the dry weight of wood at a 4% caustic concentration, at 170 deg. for 5 hours. When these cooking conditions were made more drastic, yield and pulp strength decreased without forming a pulp that was easily bleached. Anonymous. Bull. Imp. Inst. 38, 285-9 (1940) through C. A. 35, 1225-6 (1941).

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Easily moved from tank to tank. Gear drive for heavy liquids, direct drive for lighter fluids. These powerful mixers set up a strong top-to-bottom turnover plus a slow rotation. Sizes from 1/4 to 10 H.P. Catalog B-65 describes these mixers.

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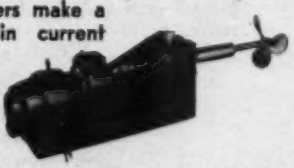

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PAPERMAKING PATENTS

IN THE UNITED STATES—Compiled by James Atkins, Registered Patent Attorney

Inquiries should be addressed to James Atkins, Munsey Building, Washington, D. C.

Paper Machine Drive

Patent No. 2,219,857. Milton T. Weston, Red Bank, N. J., assignor to West Virginia Pulp & Paper Company, New York, N. Y., a corporation of Delaware. Application January 7, 1938, Serial No. 183,745. 8 Claims. (Cl. 34—48). In a paper making machine, a group of drier cylinders, supporting shafts or trunnions for said cylinders, means for driving said cylinders including drive receiving members respectively associated with said cylinders and operatively connected thereto, driving gears concentric with respective of said drive receiving members, said driving gears meshing with one another to constitute a gear train in which each driving gear has approximately the same speed of rotation, differential gear connections between corresponding of said driving gears and said drive receiving members, and means for actuating said connections to vary the speed of the individual drier cylinders of the group in an amount to compensate for the shrinkage of paper from one drier cylinder to another.

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Apparatus for Making Paper

Patent No. 2,222,469. Casper E. Youngchild, Glens Falls, N. Y., assignor to International Paper Company, New York, N. Y., a corporation of New York. Application October 17, 1936, Serial No. 106,131. 1 Claim. (Cl. 92—44). In a paper making machine of the Fourdrinier type provided with the usual traveling wire, breast and couch rolls and suction devices, at least said breast roll having a uniform diameter throughout the greater portion of its width and having its ends decreased in diameter, said wire being of a width equal to the overall length of the roll and greater than the effective drainage area of said suction devices.

Decolorizing Paper Stock

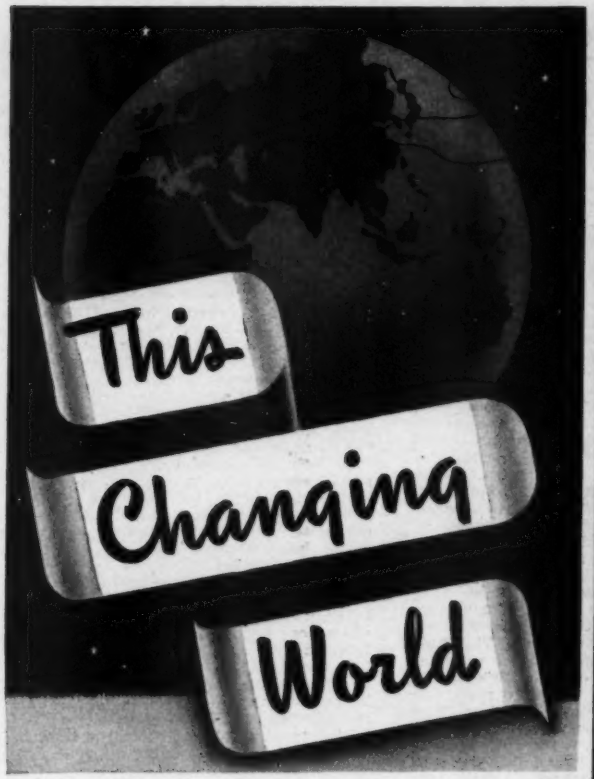
Patent No. 2,221,294. Alfred O. Bragg, Valley Stream, N. Y., assignor to Diamond Alkali Company, Pittsburgh, Pa., a corporation of Delaware. Application October 28, 1938, Serial No. 237,492. 13 Claims. (Cl. 8—102). In a method of treating paper stock with an aqueous alkali solution to condition the stock for use, the step of effecting such treatment in the presence of a nickelous compound and thereby effecting loosening of coloring agents carried by the stock.

Calender Finished Paper Board Product and Process and Means for Production or Treatment Thereof

Patent No. 2,226,709. Charles C. Colbert, Elkhart, Ind., assignor to American Coating Mills, Inc., Elkhart, Ind., a corporation of Indiana. Application February 9, 1939, Serial No. 255,468. 20 Claims. (Cl. 91—14). The process of treating calender finished paper board having a smoothly finished facing ply which comprises dampening the finished paper board by application of liquid to the back side of the board after it has undergone its final calendering, and drying the dampened board.

Bleaching Hardwood Pulp

Patent No. 2,228,127. George A. Richter, Berlin, N. H., assignor to Brown Company, Berlin, N. H., a corporation of Maine. Application April 18, 1938, Serial No. 202,711. 6 Claims. (Cl. 8—105). A process of refining preliberated hardwood pulp to low lignin and resin contents, which comprises subjecting the pulp to sequential treatments with hypochlorite liquor, chlorine, alkaline refining liquor, chlorine, and hypochlorite liquor, said first treatment with hypochlorite liquor being performed with sufficient hypochlorite to effect reaction upon most, if not practically all of the lignin content of the pulp.



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New Catalogues and Publications

Allis-Chalmers Mfg. Co., Milwaukee, Wis.—This company has just released a new distribution transformer bulletin (B-6125). The booklet covers sizes ranging from 37½ kva to 200 kva designed for standard voltages of 2400 to 69,000 volts. There are 16 pages of well-illustrated material covering the design and construction features, together with dimension sheets.

Brown Instrument Co., Philadelphia, Pa.—The new 24 page catalog (No. 9400) gives a detailed descripton of how, why, when, and where the new-matic remote transmission may be applied for indicating, recording, and control of temperature, pressure, flow, and liquid level in hazardous atmospheres where the use of electrical transmissions is not desirable nor permissible. Large, clear photographs show the interior and exterior of the instruments and schematic diagrams illustrate how they are applied for indicating, recording, and control applications. Also the operating features and a description of the principle working parts of the transmitting and receiving instruments are given.

Carbide and Carbon Chemicals Corp., New York—A new 95 page book covers the field of synthetic organic chemicals thoroughly. It presents in condensed form the properties, uses, and specifications for the products of carbide and carbon chemicals. This new edition adds six chapters and 66 products not included in previous editions, together with extensive revisions throughout. Much of the information published in this book is obtained from the technical staff of the Carbide and Carbon Chemicals Corporation and before now could be obtained from no other source. This book lists many of the characteristics and uses of the chemicals which have become available only recently. This book can be recommended as an important reference manual of industrial organic chemistry.

Cochrane Corp., Philadelphia, Pa.—A new 48 page catalog on Hot Water Softeners for removal of hardness, silica, and other scale-forming material from boiler feed and industrial process waters, has recently been published. The book contains a nine-page appendix of feedwater chemistry, in addition to heat balances, flow diagrams, two-color construction drawings, and engineering tables and charts. Effective treatments for all water conditions are discussed with various types of installation diagrammed together with descriptions and illustrations of accessory equipment and their functions.

Combustion Engineering Co., New York—A new catalog, 15 pages, giving full details of the design and construction of C-E horizontal return tubular boilers. This booklet contains various setting drawings and tables of standard dimensions for both brick-set and steel-encased settings, and illustrates installations with different methods for burning bagasse. The illustrations show all of the various accessory parts to the boilers and the descriptive material gives the important facts concerning them. Well-planned, cross-classification charts are used to give a clear picture of dimensions together with other facts.

Downington Manufacturing Co., Downington, Pa.—A new publication on pumps, 27 pages, giving an exceptionally clear picture of the various functions of the different sized pumps that this company has to offer. The outstanding features of this publication are its illustrations and the drawings accompanied by charts. These features make it a simple task to choose the correct size pump to do the particular job to be accomplished. We can recommend this catalog as being an able assistant to anyone selecting a pump.

Gilbert Paper Co., Menasha, Wis.—An attractive and helpful new book, entitled "Profitips", which is designed as an aid to printers, has just been released. Thirteen plans are offered, through which additional profits may be realized are featured in the book. All of these plans were developed in actual practice and are based on results that were obtained. Some of the subjects covered are; matched stationery, vari-colored combinations of letterhead design, standardize on good paper, true story mailings, smart sales stunts, sales stories on envelopes, etc. The book is illustrated and printed in color to lend distinction.

Hercules Powder Co., Wilmington, Del. —A new booklet entitled "Hercolyn and Abalyn, Liquid Resins of Abietic Acid" has just been issued by this company. The booklet gives data on ester content, refractive index, specific gravity, acid number, saponification number, color viscosity, flash point, flame point, vapor pressure, boiling point, thiocyanate value, weight and specific rotation of the resins. There are also graphs of vapor pressure, thermal stability and electrical characteristics and typical emulsions formulations.

International Nickel Co., New York —An addition to the series of bulletins already put out by this company (Bulletin T-19) has been released. This bulletin contains informaton on the mechanical characteristics of the high nickel alloys as compared to other materials commonly used in deep drawing. The bulletin covers die materials, lubricants, and drawing practice, along with general information on annealing and pickling of Monel, nickel, and Inconel.

Johns-Manville Co., New York—A new well-arranged 53 page catalog (Form GI-6A) on industrial products has just been released by this company. The illustrations together with the descriptive material give information and recommendations on high and low temperature insulations for every industrial need from 400 deg. F. below zero to 2500 deg. F. above. Complete data are also included on J-M refractory products and castables, J-M bonded asbestos built-up roofs and insulated roofs, corrugated transite for roofing and siding, industrial friction materials, etc. The index of the publication is conveniently divided into sections, listing related products under the same section to help the reader locate information.

Johnstone Engineering and Machine Co., Downington, Pa.—This company has recently released a new folder type publication (Bulletin 124) dealing with the twelve and fourteen score cut slitter and rewinder. The folder discusses the general features, the universal application, score cut slitter, tool steel slitter lever, sealed slitters, underpoint springs, and many other features of this machine. Illustrations are used to give a clear picture of the various parts of the machine that are taken up in the written material.

Permutit Co., New York—A well-planned pamphlet (Bulletin 2391) representing the latest authority on an interesting phase of water conditioning. It discusses in detail the facts concerning blowoff equipment. It tells why blowoff is necessary, points out the shortcomings of intermittent controls, and also takes up the subject of several modern continuous blowoff systems and the operating characteristics. Various types of heat exchangers, flash tanks, etc., are also described in detail.

Republic Stamping and Enameling Co., Canton, Ohio—A complete booklet on all of the facts about vitric steel and its advantages over other roofing materials. Illustrations show some of the tests used to determine the strength and durability of this steel. Two letters are used to give actual cases where vitric steel was far superior to other kinds of steel.

Shartle Brothers Machine Co., Middletown, Ohio—An interesting and informative bulletin (No. 127-B) entitled "Drives" has just been released by this company. The booklet discusses 6 different types of drives in 34 sizes with illustrations and important facts concerning each one. The installation of the various types of gears is also taken up in the material presented. Charts are also used to assist in the selection of the correct size gears for a particular job.

Shepard Niles Crane and Hoist Corp., Montour Falls, N. Y.—This 48 page catalog (No. 127) would be of interest to anyone using a crane or hoist. The many different types of machinery that are presented in this publication are taken up in detail and discussed thoroughly. A chart supplements each piece of machinery giving all of the important facts concerning the machine together with the work that it will do. Charts also show the weights of the different materials that will be carred by these machines and thereby help in the choice of the correct size hoist.

Stanley Tools, New Britain, Conn.—A complete new catalog showing Stanley Tools has recently been released. An alphabetical index is printed on the cover for quickly locating the various classifications of items. A more detailed index is included inside the book. The tools shown are for use in all types of industrial production and maintenance work. The items that are particularly suited for use in the airplane industry are marked by an illustration of an airplane. All the specifications and sizes of the many different tools are listed with the illustration of the tool.

Tolhurst Centrifugal Division, New York—A new, well-illustrated booklet on suspended centrifugal pumps. The following subjects are dealt with in detail; the general design of the pump, the speed and the various factors effecting it, the methods of drive used, the balanced unloader, baskets for specific processes, the factors influencing dryness and capacity, and filter media used in baskets. All of the above mentioned subjects are illustrated with pictures and charts to give a clear picture of the functions of these pumps.

Western Precipitation Corp., Los Angeles—A new 8 page bulletin on the Turbulaire Dispersion Dryer and its advantages has just been published. The advantages of this new dryer are outlined in detail and the varying range of application is discussed thoroughly. The field of application includes slimes, pulps, and other colloids that cannot be filtered. In addition, press cake, dewatered cake from centrifugals, insecticides, fish scrap, starch, industrial wastes and many technical chemicals are discussed in relation to this machine.

Zaremba Co., Buffalo, N. Y.—This company has just released an unusually informative catalog on evaporators and chemical equipment. This 80 page publication illustrates all of the different kinds of evaporators put out by this company and describes the capacity of each in detail. The evaporator processes and the body designs are also taken up to help the users of evaporators in the selection of the correct one for the job that they have to be done.

Books

Legal Effects of Military Service—A new informative booklet, recently published by Ganson J. Baldwin of the New York Bar, giving all of the legal aspects of the Soldiers' and Sailors' Relief Act of 1940. This booklet is published in two sizes, the pocket edition of which sells for 50 cents and the regular edition $1. The information contained in this publication is not only of importance to draftees and their families, but also to creditors, tradesmen, bankers, insurance men, landlords, lawyers, employers, etc.

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50TH ANNIVERSARY

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NEW RAGS — *per cwt.*

Blue Overalls	4.25 to 4.50
Corduroy	2.25 to 2.50
Cottons—	
Washables, No. 1	1.75 to 1.90
Fancy Percales	3.50 to 3.75
New Soft Blacks	3.25 to 3.50
New Light Seconds	1.60 to 1.75
New Dark Seconds	1.40 to 1.50
Khaki Cuttings—	
Mixed	2.50 to 2.75
O. D.	3.00 to 3.25
New White Canvas	7.00 to 7.50
New Mixed Blacks	2.25 to 2.50
Shirt Cuttings	
New White No. 1	6.25 to 6.50
Silesias No. 1	4.25 to 4.50
New Unbleached	6.25 to 6.50
Fancy	1.85 to 2.00
Linen Cuttings—	
White	11.50 to 12.00
Grey	11.00 to 11.50

RAGS (Domestic)
f. o. b. New York City

OLD RAGS

	per cwt.	
Roofing—		
No. 1	1.15 to	1.20
No. 2	.95 to	1.00
No. 3	.85 to	.90
Twos and Blues—		
Repacked	1.60 to	1.75
Thirds and Blues—		
Repacked	1.35 to	1.50
Miscellaneous	1.15 to	1.25
White, No. 1—		
Repacked	3.00 to	3.50
Miscellaneous	2.50 to	2.75
White, No. 2—		
Repacked	2.50 to	2.75
Miscellaneous	2.00 to	2.25

RAGS (Foreign)
ex dock New York City

NEW RAGS — *per cwt.*

New Dark Cuttings, New Mixed Cuttings, New Light Silesias, Light Flannelettes, Unbleached Cuttings, New White Cuttings, New Light Oxfords, New Light Prints — Nominal

RAGS (Foreign)
ex dock New York City

OLD RAGS — *per cwt.*

No. 1 White Linens, No. 2 White Linens, No. 3 White Linens, No. 4 White Linens, No. 1 White Cottons, No. 2 White Cottons, No. 3 White Cottons, No. 4 White Cottons, Extra Light Prints, Ord. Light Prints, Med. Light Prints, Dutch Blue Cottons, French Blue Cottons, French Blue Linens, Checks and Blues, Linsey Garments, Dark Cottons, Old Shapperies — Nominal

ROPE and BAGGING
f. o. b. and ex dock New York City

	per cwt.	
Gunny No. 1—		
Foreign (Nom.)	2.00 to	2.75
Domestic	2.60 to	2.75
Wool Tares—		
Light	2.50 to	2.75
Heavy	2.70 to	2.90
No. 1 Scrap Bagging	2.35 to	2.50
Manila Rope—		
Foreign	5.50 to	6.00
Domestic	5.50 to	5.75
New Burlap Cuttings	3.50 to	3.75
Jute Threads—		
Foreign (Nom.)	4.25 to	4.50
Domestic	3.50 to	3.75
Strings—		
Sisal	2.50 to	2.75
Soft jute	3.25 to	3.50
Mixed	1.15 to	1.25

WASTE PAPER
f. o. b. New York City

	per cwt.	
Shavings—		
White Envp. Cuttings	3.00 to	3.25
Ord. Hard White No. 1	2.35 to	2.60
Ord. Soft White No. 1	2.10 to	2.35
Soft White, Extra	2.50 to	2.75
Flat Stock—		
Stitchless	1.00 to	1.05
Overissue Mags	.85 to	.90
Solid Flat Book	.75 to	.80
Crumpled No. 1	.65 to	.70
Solid Ledger Books	2.00 to	2.10
Ledger Stock—		
White	1.65 to	1.75
Colored	1.15 to	1.25
New B. B. Chips	.35 to	.40
Manilas—		
New Env. Cuts	2.60 to	2.75
New Cuttings	1.85 to	2.00
Sulphite Mill Wrappers	.40 to	.45
No. 1 Old Kraft	1.15 to	1.25
News—		
No. 1 Wh. News Cuttings	1.50 to	1.65
Strictly Overissue	.70 to	.80
Strictly Folded	.60 to	.70
No. 1 Mixed Paper	.35 to	.40

CHEMICALS
f. o. b. shipping point

Alum (Papermakers)—	
Lump, cwt.	3.75-
Ground, cwt.	3.80-
Powdered, cwt.	3.90-
Blanc Fixe—	
Pulp, bulk, ton	35.00 to 40.00
Dry, barrels, pound	.0300 to .0400
Bleaching Powder—	
Drums, cwt.	2.00 to 3.00
Casein (Domestic Standard)—	
20-30 mesh (bags), lb.	12.00 to 13.00
80-100 mesh (bags), lb.	13.00 to 14.00
Argentine, lb.	12.50 to 13.00
China Clay—	
Domestic Filler	
Bulk (mine) ton	7.50 to 15.00
Domestic Coating	
Bulk (mine) ton	12.00 to 22.00
Imported (ship side)	
Bulk (lump) ton	15.00 to 26.00
Chlorine—	
Tank cars (wks) cwt.	1.75 to 1.90
Gelatine (silicin), lb.	.55 to .57
Glye. (C.P.) drums, lb.	.1250 to .1300
Litharge, powd., bbl., lb.	.06
Rosin (Gum)—	
New York, per 100 lbs.	
E	2.30-
F	2.29-
G	2.29-
WW	3.41-
Rosin (Wood), carlots	1.54-
Salt Cake—	
Dom. bulk (wks) ton	16.00 to 17.00
Imp. bulks on dock—	
(Atl. ports) ton (Nom.)	30.00 to
Soda Ash—	
Bulk (works), cwt.	.90 to .95
Paper Bags, cwt.	1.05 to 1.25
Barrels, cwt.	1.05 to 1.35
Soda (Caustic)—Ammonia,	
Solid, drums, cwt.	2.30 -
Ground and flake, drums, cwt.	2.70 -
Sodium Silicate—	
60 deg., 55 gal. drums, (works) cwt.	1.65 to 2.00
40 deg., 55 gal. drums, (works) cwt.	.80 to 1.45
Starch—	
Pearl, 140 lb. bags, cwt.	2.95-
Pearl, barrels, cwt.	3.05-
Paper (8p.) bags, cwt.	3.05-
barrels, cwt.	3.15-
Sulphur (crude)—	
(mine) bulk, long ton	16.00 to 20.50
Talc—	
Dom. 100 lb. bags (mine) ton	14.00 to 17.25
Imp. bulk, ton (Nom.)	—
Titanium Dioxide—	
Barium Pig., bbls., lb.	.05¼ to .05¾
Calcium Pig., bbls., lb.	.05 to .05¾
Zinc Sulphide, bbls., lb.	.07¾ to .08

CHEMICAL PULP
(Air-dry ton)

	per cwt.
Soda (Dom.) del'd. mill—	
Bleached, contract	3.30 -
Open market	3.30 -
Sulphate (Dom.) f. o. b. mill—	
Bleached	4.00 to 4.25
Kraft No. 1	3.25 to 3.50
Kraft, Southern, del.	3.00 to 3.25
Sulphate (Imp.) on dock—	
Bleached	4.50 to 4.75
Kraft No. 1	3.50 to 3.75
Kraft No. 2	3.25 to 3.50
Sulphite (For.)	
On dock—	
Prime bleached	4.00 to 4.25
Prime easy bleach	3.75 to 4.00
Prime strong unbl	3.25 to 3.50
Sulphite (Dom.)	
Bleached, contract	3.62½ -
Bleached, open market	3.62½ -
Unbleached, contract	3.17½ -
Unbleached, open market	3.17½ -

MECHANICAL PULP
(Air-dry ton)

No. 1 Dom. & Can. (f. o. b. pulp mill)	32.00 to 35.00
No. 1 Imp. (On dock)—	
Moist	—
Dry	—

PAPER
f. o. b. New York City

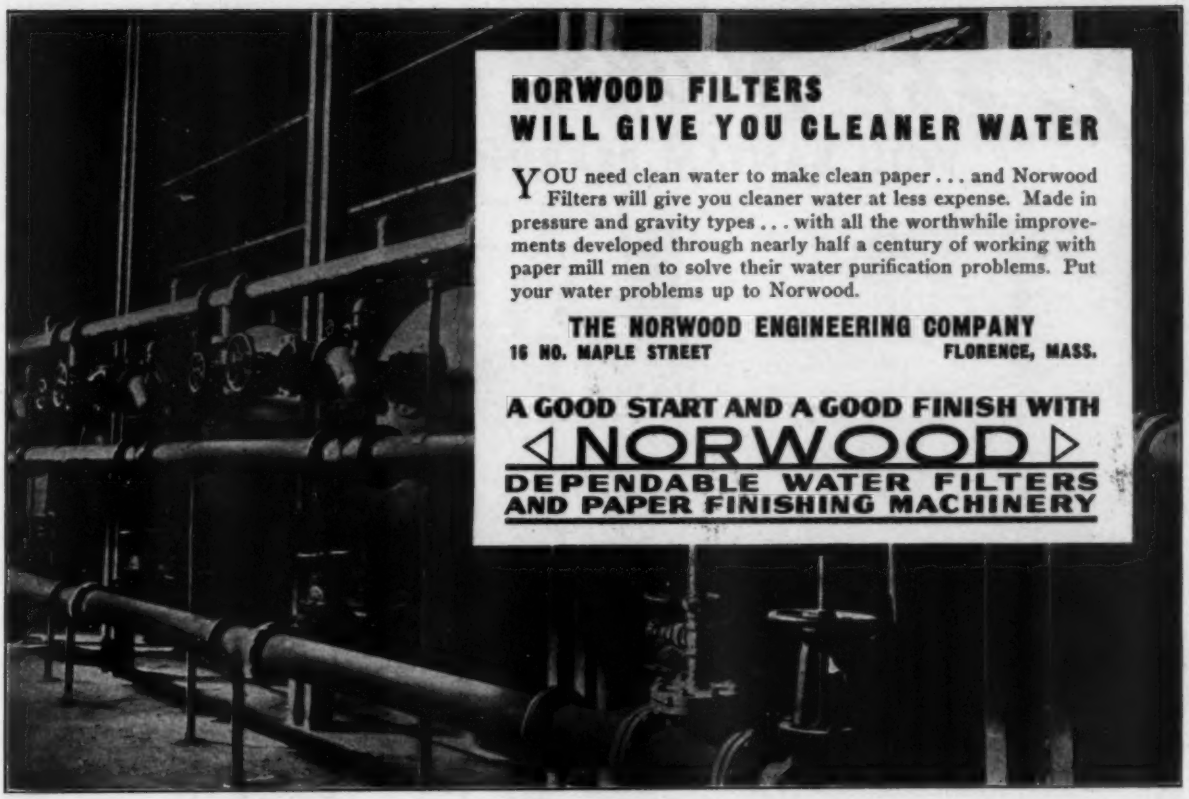
	per ton
Boards—	
Binders	73.00 to 80.00
Chip	35.00 to 40.00
Chip, sgl. mla. lined	52.50 to 55.00
Coated, white patent	
.016	75.00-
.020 and heavier	70.00-
Kraft liner	55.00-
News	35.00 to 40.00

	per cwt.	
Book (coated)		
No. 1 Glossy Coat	11.90 to	12.50
No. 2 Glossy Coat	10.35 to	11.75
No. 3 Glossy Coat	9.55 to	11.00
No. 4 Glossy Coat	9.15 to	10.50
No. 2 Offset	8.40 to	9.75
A Grade M. F.	6.75 to	7.25
A Grade Super	7.00 to	7.50
B Grade M. F.	6.30 to	6.80
B Grade Super	6.55 to	7.05
B. S. & S. C. Litho	6.80 to	7.30
B. M. F. Litho	6.55 to	7.05
Ivory & India	.50 cwt.	extra
Bonds (Rag Content)—		
100% Rag		
Ext. No. 1	39.10 to	46.00
100% Rag	31.05 to	36.50
85% Rag		
75% Rag	23.60 to	27.75
65% Rag	20.50 to	25.00
50% Rag	17.55 to	21.50
25% Rag	14.65 to	17.75
Regular Colors	1.00 cwt.	extra
Bonds (Sulphite)—		
No. 1	9.35 to	11.50
No. 2	8.50 to	10.25
No. 3	8.05 to	9.25
No. 4	7.70 to	9.50
Colors	1.00 cwt.	extra
Glassine (f. o. b. mill)—		
Embossed (25 lb. up)	13.75 to	14.00
Bleached (25 lb. up)	12.75 to	13.87½
Unbleach. (25 lb. up)	11.00 to	11.25
Greaseproof—		
Bleach. (25 lb. up)	10.50 to	10.75
Unbleach. (25 lb. up)	9.50 to	9.75
Ledgers (Rag Content)—		
100% Rag		
Ext. No. 1	40.25 to	47.25
100% Rag	32.30 to	37.75
85% Rag	29.90 to	35.00
75% Rag	24.75 to	29.00
65% Rag	21.65 to	26.25
50% Rag	18.70 to	22.75
25% Rag	15.80 to	19.25
Regular Colors	1.00 cwt.	extra
Ledgers (Sulphite)—		
No. 1	11.55 to	12.75
No. 2	9.65 to	11.75
No. 3	9.30 to	11.25
No. 4	8.90 to	10.75
News—	*per ton*	
Rolls (Contract)	49.00 to	50.00
Rolls (Spot)	(nominal)	
Sheets	58.00 -	

	per ream	
Tissues (Carlots)—		
White, No. 1	.97½ -	
White, No. 2	.75 to	.77½
Anti-Tarnish M. G.	.80 to	1.05
Colored	.87½ to	1.10
Kraft	.85 to	.90
Manila	.77½ to	.80
Napkins, semi-crepe (12¼ lb. to M shts.) per cs	.41 -	
Napkins, full crepe and emb'sed (12¼ lb. to M shts.) per cs.	.43¾ -	
Toilet, Bleached (M shts.) per cs	5.80 -	
Toilet, Unbleached (M shts.) per cs	3.50 -	

	per case	
Towels—		
Bleached	3.10 to	3.65
Unbleached	1.95 to	3.30

	per cwt.	
Wrappings (Kraft)—		
Extra Quality	5.35 to	5.75
Super-Standard	4.87½ to	5.25
Northern Standard	4.25 to	4.75
Southern Standard	4.25 to	4.75
Wrappings (Sulphite and Bleached Kraft)—		
(Rolls, f. o. b. mill)		
Bleached papers—		
M.F.& M.G. Waxing, 20 lb. (Carloads only)	6.40 to	6.80
(10,000 lbs.)	6.80 to	6.90
Drug wrapp. 35 lb.	6.00 to	6.25
Unbleached Papers—		
Com. Grd. Butch. 40 lb.	4.50 to	4.75
No. 1 Butchers	5.00 to	5.12½
No. 1 Imit. Parch & Dry Fin.Groe.Sulphite 30 lb.	5.50 to	5.75
No. 2 Imit. Parch & Dry Fin.Groe.Sulphite 30 lb.	4.87½ to	5.12½
Steam Finish, 50 lb.	3.87½ to	4.00
Water Finish, 40 lb.	4.50 to	4.75
Manilas—		
Envp. Mla., Sub. 16-40 (No. 1)	5.25 to	5.50
Envp. Mla., Sub. 16-28 (No. 2)	5.00 to	5.25
Envp. Mla. (Prices based on large sheets untrim'd reamarked, in bdls.)		
Wrapp. Mla. 35 lb. up—		
No. 1	5.25 to	5.50
No. 2	5.00 to	5.25
M. G. Sulphite and Kraft (other than Waxing)		
Grade A-25 lb.	6.00 to	6.12½
Grade B-35 lb.	5.50 to	5.62½



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2-400 KW. Same as above except 80% P.F. Motors.
1-150 KW. G.E. M-G Set 250 v. DC 2300 v. 3 ph. 60 cy. 1200 RPM 80% P.F. with panels.
1-150 KW. West. M-G Sets 550 v. cpd. interpoled Generators 2300 v. 3 ph. 60 cy. Syn. Motors with panels.
2-100 KW. Westgh. 3 wire M-G Sets 125/25 v. cpd. interpole generator 90% P.F. Motors with panels.
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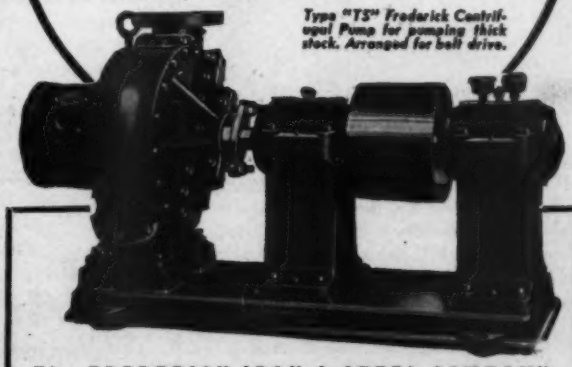
Extra heavy shafts made of chrome heat-treated steel are carried in long babbitted sleeve bearings arranged for ring oiling . . . Non-clog impeller wheel is specially designed to permit easy flow of heavy stock . . . Patented adjustable liner plates on front and rear sides of the impeller make adjustment or replacement easy . . . Extra long packing box houses twice the usual number of rows of packing.

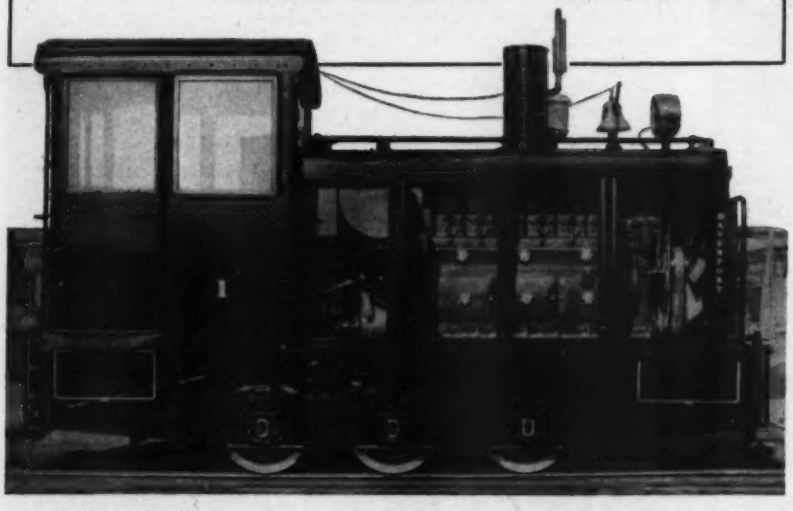
These are just a few of the special FREDERICK features you will want to know all about. Write for detailed data . . . no obligation. See why FREDERICKS can be guaranteed to meet the operating conditions for which they are sold!



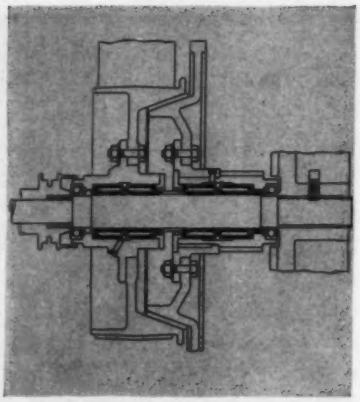
Type "TS" Frederick Centrifugal Pump for pumping thick stock. Arranged for belt drive.

The FREDERICK IRON & STEEL COMPANY
FREDERICK, MARYLAND

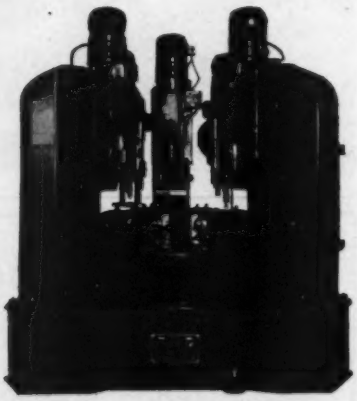
In the News
WITH BANTAM BEARINGS

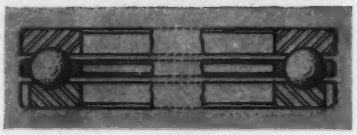


UP-TO-THE-MINUTE LOCOMOTIVE of the industrial type is this unit designed and built by Davenport Besler Corp. for hauling sugar-cane in Puerto Rico. Locomotive replaces steam unit previously used, is powered by 6-cylinder Fairbanks-Morse Diesel engine. Bantam Quill Bearings, used on the wrist pins of the Diesel, are the recognized standard for this service, where their small size and high capacity in oscillating loads are outstanding advantages.

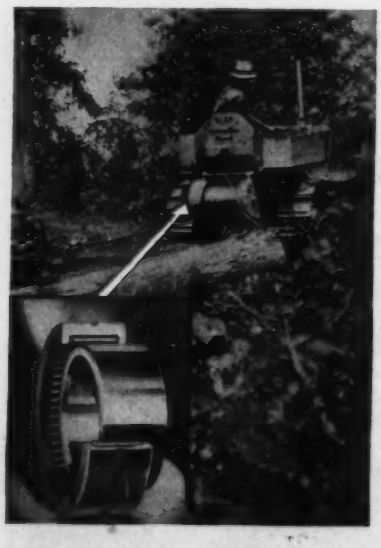


FASTER PRODUCTION at Missisquoi Corporation was made possible when the special Bantam Radial Roller Bearings shown were used to replace bronze bushings on the main friction pulley shaft of a rewinder. Shutdowns caused by friction pulley trouble have been eliminated, and operating speeds have been considerably increased.

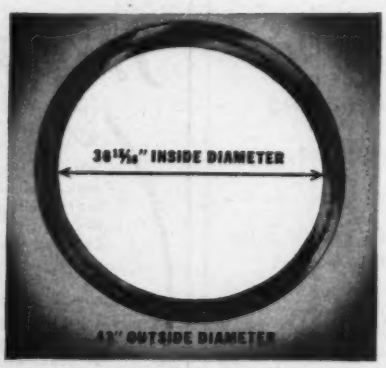




6-STATION DRILLING MACHINE built by The Bradford Machine Tool Company turns on Bantam indexing table bearing of the ball thrust type, measuring 30" O.D., 27" I.D., 2" thick. Here is another typical instance of the way Bantam serves industry with custom-built bearings in large sizes or special types. If you have an unusual bearing problem, TURN TO BANTAM.



LOGGING OPERATIONS in rough, hilly country put towing equipment to the severest test. Willamette Hyster Co. improves efficiency, lengthens service life of its HYSTER D2 Towing Winches by using Bantam Quill Bearings on idler gear and reverse idler gear—where space is so limited that no other type of anti-friction bearing could be successfully employed. Moreover, the Quill Bearing is low in cost and easy to install. For further information on this compact, high-capacity bearing, write for Bulletin O-104.



THIS GIANT ROLLER BEARING has a radial capacity of 225,000 pounds at 100 RPM, uses 125 rollers 1" long and 1" in diameter. It is one of a group specially engineered by Bantam for use by Ohio Oil Company in central station pumping equipment, to provide high radial capacity and reduce need of servicing.

BANTAM BEARINGS

STRAIGHT ROLLER · TAPERED ROLLER · NEEDLE · BALL

BANTAM BEARINGS CORPORATION • SOUTH BEND • INDIANA

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